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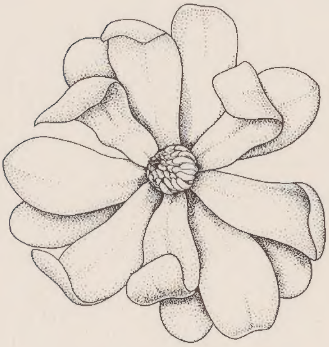


HARVARD UNIVERSITY

FLORA OF THE
LESSER ANTILLES

Leeward and Windward Islands

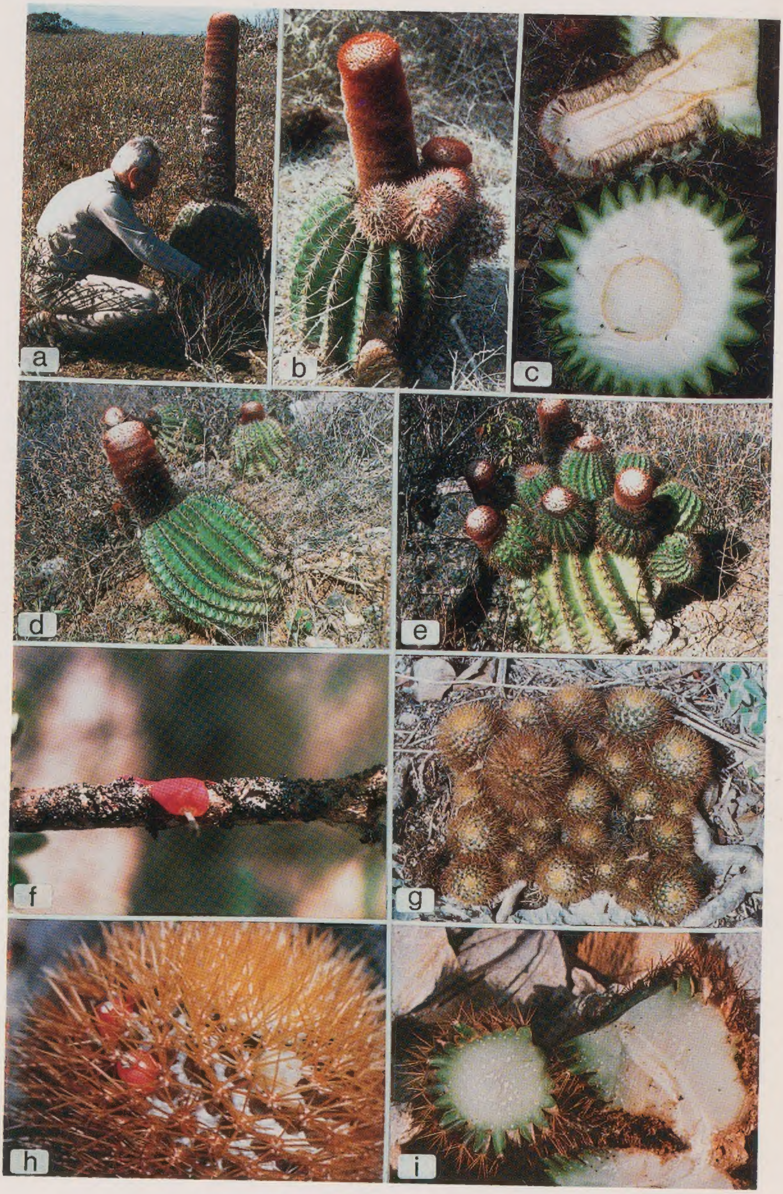
FLORA OF THE LESSER ANTILLES

Leeward and Windward Islands

VOLUME 5

OVERLEAF

Plate 1. a-f, *Melocactus intortus*: a, Mature plant with massive cephalium. La Désirade; b, Plant with original cephalium and adventitious cephalia both vegetative and flowering; c, Cross section of vegetative body and (above) longitudinal section of a cephalium; d, Tilted plant showing a bifurcated rib and a truncated rib; e, An old plant which lost the original cephalium showing proliferation of adventitious cephalia some flowering and some only vegetative; f, Branch of a neighboring plant showing a fruit of *Melocactus* freshly deposited by a thrush. Numerous black seeds of the *Melocactus* are visible on either side. g-i, *Mammillaria nivosa*: g, A cluster of plants of *Mammillaria nivosa* on Barbuda. The maternal plant, or source of the rhizomatous proliferation of young plants, is near the upper left; h, The apex of a plant showing two mature fruits and one flower under the clusters of spines; i, Transverse and longitudinal sections of a vegetative body showing the distribution of cells producing a milky latex.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FLORA OF THE LESSER ANTILLES

Leeward and Windward Islands

BY

RICHARD A. HOWARD

ARNOLD ARBORETUM
HARVARD UNIVERSITY

VOLUME 5

DICOTYLEDONEAE – PART 2

with the collaboration of

Allan J. Bornstein

Arnold Arboretum, Harvard University
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1989

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EUPHORBIACEAE

EUPHORBIACEAE A. L. Juss., Gen. Pl. 384. 1789.

Monoecious or dioecious herbs, shrubs, trees, or woody or herbaceous vines; stems sometimes succulent, occasionally spiny, some with stinging hairs on various parts, with milky or clear sap that is often toxic. Leaves alternate, less often opposite or whorled, petiolate or sessile; blades simple, entire, lobed, or compound, pinnately or palmately veined, with embedded or variously stalked glands, glabrous or pubescent with simple or branched, stellate, lepidote, or glandular pubescence; stipules present or absent, free or connate, foliaceous or reduced to glands, persistent or caducous. Inflorescences axillary, terminal, or leaf-opposed, cymose, racemose, or spicate, or grouped in pseudanthia; staminate or pistillate flowers proximal or distal or inflorescences unisexual; perianth present or wanting, calyx if present usually of 3 to 6 valvate lobes, corolla of 2 to 6 petals, present in one or both sexes or wanting; disc present in one or both sexes, annular or lobed; stamens mostly 3 to 15 but occasionally only 1 or more than 50, filaments free or variously united or in series, glabrous or pubescent; pistil of 2, usually 3, or to 20 carpels, ovary superior, lobed, occasionally with horns or wings, ovules 1 or 2 per locule, styles 3 or more, bifid or many times divided, variously united. Fruits usually capsular, occasionally drupaceous, often dehiscing explosively, cocci 2-valved, columella persisting or not, often papery-winged; seeds 1 or 2 per locule or fruits 1-seeded by abortion, testa usually dry and variously angled and ornamented or with a fleshy, colored sarcotesta, caruncle present or absent.

TYPE: *Euphorbia L.*

A very large, diverse, predominately tropical family of over 300 genera and 7500 species.

KEY TO THE GENERA

1. Ovules paired in each locule, seeds usually 2 per locule; leaves entire, not lobed, without laminar or petiolar glands; sap never milky.
    2. Stipules intrapetiolar and connivent; petals present; stigmas sessile, divided; seed 1 .... *Amanoa*
    2. Stipules interpetiolar, not connivent; petals wanting.
        3. Flowers in racemes; staminate flowers with a pistillode; fruits 1-seeded.

4. Leaves lepidote, pointed at tip; stipules and bracts stalked, cucullate; inflorescences axillary; staminate flowers pedicellate; fruits drupaceous, bicarpellate, 2-4 mm long, testa dry .... *Hyeronima*
4. Leaves glabrous or nearly so, rounded at tip; stipules ovate; inflorescences often borne below leaves; staminate flowers subsessile; fruits capsular, over 1 cm long, testa fleshy .... *Richeria*
3. Flowers glomerate in axillary clusters; staminate flowers without pistillode.
5. Leaves subcoriaceous; staminate disc central; carpels 1 or 2; fruits indehiscent .... *Drypetes*
5. Leaves membranous; staminate disc excentric; carpels 3 to 5; fruits dehiscent.
6. Dioecious trees, usually deciduous with branches conspicuously lenticellate; fruits long-pedicellate, irregularly dehiscent, the exocarp separating; carpels 4 or 5; sarcotesta blue........ *Margaritaria*
6. Monoecious herbs or shrubs or, if trees, cultivated; fruit dehiscent into 3 cocci; carpels mostly 3; testa dry.
7. Floral disc present; sepals free or nearly so; seeds with dry testa not ventrally invaginated .... *Phyllanthus*
7. Floral disc absent; calyx campanulate and accrescent; seeds slightly fleshy and ventrally invaginated; young leaves multicolored; shrubs, mostly cultivated .... *Breynia*
1. Ovules solitary in each locule; leaves often lobed, petiolar or laminar glands often present; sap milky or clear.
8. Flowers aggregated into pseudanthia.
9. Vines; leaves lobed; pseudanthia bilabiate, subtended by 2 large, divergent, palmately veined bracts; fruiting calyx fimbriate, with stinging hairs .... *Dalechampia*
9. Herbs, shrubs, or small trees; leaves not lobed; pseudanthia ebracteate; fruiting calyx without stinging hairs.
10. Cyathium spurred and strongly zygomorphic, glands hidden within the spur; leaves commonly fleshy .... *Pedilanthus*
10. Cyathium not spurred, more or less actinomorphic, glands 1 to 4 on rim of cyathium.
11. Leaves all opposite, base inequilateral, stipulate; main axis aborting early and branches often unilateral in development; seeds ecarunculate .... *Chamaesyce*
11. Leaves alternate, opposite, or whorled, long-petiolate, stipules often wanting; main axis apparent; seeds usually carunculate .... *Euphorbia*
8. Flowers not aggregated into pseudanthia.
12. Leaves compound .... *Hevea*
12. Leaves simple.
13. Stamens many, fasciculate; leaves peltate, palmately lobed; inflorescences paniculate, pistillate flowers distal; seeds carunculate .... *Ricinus*
13. Stamens not branched; leaves not peltate or palmately lobed; inflorescences terminal or lateral, not paniculate, if bisexual the pistillate flowers proximal.
14. Petals present at least in staminate flowers, often conspicuous in both sexes.

15. Plants glabrous; latex copious; leaves usually colored, commonly cultivated .... *Codiaeum*

15. Plants mostly pubescent; leaves not brightly colored or variegated, occasionally purplish below or in drying.

16. Petals 6 to 13, conspicuous, pink to red; stamens ca. 50; pistillate flowers 1 or 2; fruits 3-4 cm dia. .... *Garcia*

16. Petals 5; stamens 5 to 15; pistillate flowers several to many.

17. Indumentum of lepidote or stellate hairs; blades often glandular at base; inflorescences commonly spicate; anthers inflexed in bud .... *Croton*

17. Indumentum not stellate, rarely lepidote; anthers more or less erect in bud.

18. Leaves palmately veined or lobed; inflorescences dichasial; perianth biseriate; seeds carunculate.

19. Trees; perianth white, calyx valvate; stamens 15 to 120; fruits ≥ 4 cm dia.; cultivated (Tung oil tree) .... *Aleurites moluccana*

19. Shrubs or small trees; perianth red or green, calyx imbricate; stamens to 12; fruits smaller .... *Jatropha*

18. Leaves pinnately veined, finely serrate; inflorescences racemose; seeds ecarunculate.

20. Shrubs to 1 m tall; leaves drying purplish, lateral veins not distinctly parallel; hairs malpighiaceous; pistillode wanting; capsules smooth, hirsute .... *Argythamnia*

20. Herbs; leaves drying green, lateral veins distinctly parallel; hairs simple or glandular, not malpighiaceous; pistillode present; capsules muricate or spinulose .... *Caperonia*

14. Petals reduced or absent in both sexes.

21. Calyx petaloid; inflorescences dichasial.

22. Stinging hairs present; staminate calyx white; stamens connate; disc extrastaminal; latex white .... *Cnidoscolus*

22. Stinging hairs wanting; staminate calyx yellow, green, or purple; stamens free; disc intrastaminal; latex clear; cultivated as crop plant (Cassava) .... *Manihot*

21. Calyx not petaloid; inflorescences not obviously dichasial.

23. Large tree with woody spines on trunk and branches; styles connate in a column terminating in a fleshy disc 2-3 cm wide with radiating arms; staminate flowers in 2 to 5 whorls aggregated in pedunculate, fleshy cone; carpels more than 5; fruits > 8 cm dia., depressed, explosively dehiscent .... *Hura*

23. Herbs, shrubs, or small trees but without spines; styles shorter than 2.5 cm or not ending in a broad disc; staminate flowers not aggregated in fleshy cone; carpels less than 5, or, if more, fruit fleshy.

24. Floral bracts with conspicuous, paired, basal glands; staminate calyx lobes open or imbricate.

25. Petiole eglandular; stamens 3; seeds carunculate .... *Sebastiania*

25. Petiole glandular with stipitate glands slightly below junction of blade; seeds ecarunculate.

26. Petiole glands 2; fruits thin-walled, usually dry, capsular, locules 3; seed coat fleshy .... *Sapium*
26. Petiole gland 1; fruits drupaceous, indehiscent, locules 6 to 10; seed coat dry .... *Hippomane*
24. Floral bracts eglandular; staminate calyx valvate (or perhaps imbricate in *Tetrorchidium*).
27. Climbing herbs or woody lianas.
28. Plants with stinging hairs; herbaceous vines; styles 3, spreading .... *Tragia*
28. Plants without stinging hairs; woody vines; styles connate for greater part of their length into a column.
29. Stamens 10 to 40; carpels 4, carinate-winged; seeds lenticular, 15-17 mm dia.; leaves acuminate .... *Plukenetia*
29. Stamens 2 or 3; carpels 2 or 3, sericeous not winged; seeds compressed, 39-40 mm broad; leaves obtuse.. .... *Omphalea*
27. Shrubs or trees, not lianas; styles free or at least not united into an elongate column.
30. Inflorescence buds perulate, the scales deciduous; stamens stalked and branched; fruiting pedicels to 2.5 cm long.. .... *Actinostemon*
30. Inflorescences without perulae or overlapping scales.
31. Anthers twisted or vermiform; pistillate bracts much larger than the staminate; inflorescences spicate; styles lacerate .... *Acalypha*
31. Anthers not twisted or vermiform; pistillate bracts not much larger than or different from the staminate; inflorescences racemose or thyrsoid, not spicate.
32. Perianth wanting in staminate and pistillate flowers; pedicel and peduncle elongating in fruit .... *Gymnanthes*
32. At least a calyx present.
33. Stamens 3, anthers peltate; stigmas 2, sessile and appressed .... *Tetrorchidium*
33. Stamens 10 or more; styles evident, free or nearly so.
34. Axillary branches modified into spines or tipped by spines; leaves clustered on axillary short-shoots; pistillate pedicels to 5 cm long in fruit; styles laciniate; leaves eglandular .... *Adelia*
34. Axillary branches not modified into spines; leaves alternate; pistillate pedicels short, less than 1 cm long; styles 1- or 2-fid; leaves with conspicuous foliar glands at base .... *Bernardia*

ACALYPHA L.

Acalypha L., Sp. Pl. **2:** 1003. 1753.

Herbs, shrubs or small trees; monoecious or dioecious. Leaves alternate, petiolate; blades palmately veined at base, or pinnate, membranaceous, variously toothed; stipules present, often caducous. Inflorescences axillary or terminal, spicate or paniculate, unisexual or bisexual, the latter often terminated by an allomorph pistillate flower that has not been observed to mature seeds; staminate flowers several at each node, subsessile, calyx of 4 valvate segments, without petals; pistillate flowers usually one at each node, pedicellate or sessile, subtended by minute or large, foliaceous bract that is variously toothed or lobed, calyx lobes 3 to 5, imbricate, ovary 3-lobed, ovules 1 per locule, glabrous, pubescent, muricate or glandular, styles simple or several times divided into filiform segments. Fruits capsular, dehiscent; seed surface smooth or tuberculate, caruncle small.

LECTOTYPE: *Acalypha virginica* L; vide J. K. Small *in* N. L. Britton & A. Brown, Ill. Fl. N. U.S. ed. 2, **2:** 457. 1913.

A genus of 350 to 400 species in need of revision. Most abundant in the West Indies and South America.

CULTIVATED SPECIES

Acalypha godseffiana Masters. This shrub most commonly has leaves margined with white or yellow. The narrow leaf form called "var. heterophylla" or "Hamiltoniana Bruant" or "forma monstrosa J. J. Smith" is under cultivation on several islands and the plants often produce mutant branches with the large normal leaves.

Acalypha hernandiifolia Sw. is cited by Grisebach (Fl. Brit. W. Indian Is. 47. 1859) from St. Vincent on the basis of a Guilding collection (n.v.). The Swartz species is regarded as a synonym of *A. elliptica* Sw. by Fawcett & Rendle.

Acalypha hispida Burman f., known as cat-tail, red hot poker, or chenille plant is commonly cultivated. Only the pistillate form with drooping spikes to 50 cm long and fimbriate red styles is known in the Lesser Antilles.

Acalypha setosa A. Rich. is regarded as a plant of Cuba and the Greater Antilles. St. Lucia was cited in the distribution of the species by Urban (Symb. Antill. **4:** 347. 1905) and repeated by Britton & Wilson and by Vélez. No specimens were ever cited and none referable to this species have been seen from St. Lucia.

Acalypha wilkesiana Muell. Arg., as a shrub with normally varied-colored leaves as well as the distinctive circinnate leaf form, is commonly cultivated. It is known as the headache bush where leaves are strapped to the forehead as a "cure," or as the shoeshine plant when the leaves are used to polish shoes. It is also known in the literature of the Caribbean as *A. tricolor* Hort. ex Seemann, *A. marginata* (Poiret) Sprengel or *A. musaica* Williams. Fosberg (Smithsonian Contr. Bot. **45**: 7-12. 1980) **45:** concluded that one polymorphic species was represented, which he called *Acalypha amentacea* Roxb. Fosberg published, among others, the combinations *A. amentacea* ssp. *wilkesiana* (Muell. Arg.) Fosberg and *A. amentacea* ssp. *wilkesiana* f. *circinnata* (Muell. Arg.) Fosberg. A. C. Smith (Flora Vitiensis Nova **3:** 525, 526. 1981) stated: "I do not consider it (*A. wilkesiana*) a very close relative of *A.*

stipulacea Klotzsch (*A. amentacea* sensu auct., non Roxb.) as sometimes implied in herbarium identifications.''

NOTE: The allomorph flowers of *Acalypha* have been discussed by A. Radcliffe-Smith in Kew Bull. **28:** 525-529. 1973.

KEY TO THE SPECIES

1. Inflorescences bisexual.
  2. Inflorescences terminal; allomorph flowers wanting; perennial, woody at base, spreading branches to 20 cm long; petiole shorter than blade .... *A. chamaedrifolia*
  2. Inflorescences axillary; allomorph flowers present or wanting; erect herbs or shrubs.
    3. Pistillate bracts or flower clusters 1 to 3; staminate portion of inflorescence 3 or more times as long as the pistillate; shrubs; allomorph flowers wanting .... *A. cuspidata*
    3. Pistillate bracts numerous; herbs; allomorph flowers present.
      4. Inflorescences compact; pubescence of long spreading hairs and shorter curved hairs; bracts dentate .... *A. poiretii*
      4. Inflorescences elongate, bracts or flower clusters separated; pubescence of short curved hairs only; bracts shallowly toothed or undulate .... *A. indica*
1. Inflorescences unisexual; plants monoecious or seemingly dioecious.
  5. Bracts of pistillate flowers minute.
    6. Inflorescences paniculate; pistillate flowers pedicellate; leaves crenate.
      7. Leaves ovate-elliptic; stipules long-setaceous, to 10 mm; styles red, verrucose; fruits red, verrucose; shrub to 3 m tall .... *A. vincentina*
      7. Leaves ovate; stipules short, 2 mm long; fruits glandular-verrucose; herb to 1 m tall .... *A. villosa*
    6. Inflorescences spicate; stipules broadly lanceolate, 1.5 cm long; flowers sessile, ovary verrucose-glandular; leaves sharply dentate; shrub to 3 m tall .... *A. elizabethae*
  5. Bracts of pistillate flowers large, foliaceous or with filiform lobes.
    8. Bracts with filiform lobes, conspicuously pilose; inflorescences dense, compact, oblong in outline; staminate inflorescences short, 1-2 cm long.
      9. Plants with glandular hairs mixed with short curved pubescence; inflorescences terminal; stipules lanceolate, pubescent, short; styles simple .... *A. alopecuroidea*
      9. Plants lacking glandular hairs; inflorescences axillary; stipules setaceous, ending in long stiff hair or hairs; styles laciniate .... *A. arvensis*
    8. Bracts foliaceous, short-toothed; inflorescences elongate, lax, bracts separate; staminate inflorescences exceeding 6 cm long .... *A. macrostachya*

Acalypha alopecuroidea Jacq., Collectanea **3:** 196. 1789.

Type: Venezuela, Jacq., Icon. Pl. Rar. **3:** *t. 620.* 1792.

Erect herb branched from near base, pubescence of short curved and gland-tipped hairs. Leaves with petioles 2-6 cm long; blades triangular-ovate, 2-4 × 2-3 cm, base truncate to subcordate, apex short-acuminate, margin serrate, 3-nerved at base, membranaceous, thinly hispid but with glands on margin at apex of petiole; stipules lanceolate, > 1.5 mm long, caducous. Staminate spikes few-flowered, 3-9 mm long; pistillate spikes terminal, on peduncles 1 cm long, with terminal bristle and allomorph flower; bracts 7-9 mm long, 3- to 5-lobed, lobes setaceous or filiform, long-pilose and glandular; ovary pilose, styles united below, simple. Capsules 2 mm long, glabrous; seeds ovoid, 1 mm long, reddish brown, muricate.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, Trinidad, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, Grenada!.

Acalypha arvensis Poeppig & Endl., Nov. Gen. Sp. Pl. **3:** 21. 1841.

Lectotype: Peru, *Poeppig 2215.*
Syn.: *Acalypha arvensis* Poeppig & Endl. var. *belangeri* Briq., Annuaire Conserv. Jard. Bot. Genève **4:** 228. 1900. (Type: Martinique, *Bélanger 750 bis* (G).)

Annual herb to 50 cm tall, stems with incurved hairs. Leaves with petioles 2-3.5 cm long; blades rhombic-ovoid to rhombic-lanceolate, 3-7 × 2.5-4 cm, base acute, apex acute, margin crenate-serrate, 5-nerved at base, membranous, sparsely pilose; stipules linear-triangular with 1 or more long, stiff hairs at apex. Staminate inflorescences axillary, > 1 cm long; pistillate spikes axillary, 1.5-2.5 cm long; fruiting bracts 5 mm wide, 4- to 7-parted, lobes triangular-ovate at base but long-filiform or acuminate at end, hirsute with long hairs; ovary pilose, styles laciniate above middle. Capsules 2 mm wide, pilose; seeds broadly ovoid, 1 mm long, muriculate.

GENERAL DISTRIBUTION: Mexico, Central America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!.

COMMON NAME: Ortie batana.

Acalypha chamaedrifolia (Lam.) Muell. Arg. *in* DC., Prodr. **15**(2): 879. 1866.

Basionym: *Croton chamaedrifolia* Lam., Encycl. **2:** 215. 1786.
Lectotype: Sloane, Voy. Jamaica *t. 82, fig. 3.* 1707.
Syn.: *Acalypha reptans* Sw., Prodr. 99. 1788; Fl. Ind. Occid. **2:** 1170. 1800, nom. illegit. for *Croton chamaedrifolia* Lam.

Perennial herb with erect or decumbent stems to 20 cm long, pubescent with stiff straight hairs and short curved ones. Leaves with petioles to 1.5 cm long; blades heteromorphic, lower suborbiculate, upper oblong-ovate to oblong-lanceolate, 1-2 × 0.9-2 cm, base cordate or rounded, apex obtuse or subacute, margin crenate-serrate, membranaceous, pellucid-dotted, pilose on veins; stipules 2 mm long, caducous. Spikes terminal, subsessile, basal 3 or 4 flowers pistillate; bracts lanceolate, 7 mm wide, acute, margin with < 12 dentate teeth, 1-1.5 mm long, pubescent; ovary pilose, styles simple or divided above; staminate portion densely flowered, < 2 cm long, allomorph flower wanting. Capsules 1.5 mm long, pilose; seeds broadly ovoid, 1-1.5 mm long, dark brown.

General distribution: Florida, Greater Antilles.

Distribution in Lesser Antilles: St. Martin, St. Barts, Antigua!, Saba, Guadeloupe, Dominica!.

Common names: Ortie petit, ricine petit.

Acalypha cuspidata Jacq., Pl. Hort. Schoenbr. **2:** 63, *t. 243.* 1797.

Lectotype: Venezuela, Caracas, ibid. *t. 243.*

Shrub or small tree < 3 m tall, hirsute with long straight hairs and short curved ones. Leaves with petioles 3-8 cm long; blades ovate, 9-12 × 5-8 cm, base narrowed to broadly obtuse or subcordate, apex long-acuminate, margin crenate, 3- to 5-nerved at base, membranaceous, glabrate above, hirsute below; stipules linear-subulate, 3-5 mm long. Spikes axillary; pistillate bracts 2 to 4, reniform-ovate, 5-6 mm wide, margin with up to 15 dentate teeth; ovary densely glandular and pubescent, styles over 9 times laciniate from base, pilose; staminate portion naked at base, < 3 cm long, densely flowered, allomorph flower not seen. Capsules 2 mm long; seeds ellipsoidal, 1.4 mm long, brown.

General distribution: Mexico, Central America, Greater Antilles, South America.

Distribution in Lesser Antilles: St. Vincent!, the Grenadines!, Grenada!.

Acalypha elizabethae R. Howard, Phytologia **61:** 1. 1986.

Type: St. Lucia, *R. A. Howard 11492* (holotype, A).

Shrub < 3 m tall, hirsute with long stiff hairs. Leaves with petioles 7-10 cm long; blades broadly ovate, 15-20 × 10-12 cm, base cordate, apex abruptly acuminate-cuspidate, margin sharply dentate, strongly palmately veined at base, the veins 5 or more, membranaceous; stipules broadly lanceolate, < 1.5 × 0.5 cm, apex long, acute. Inflorescences axillary; staminate densely flowered, 7-10 cm long; pistillate tenuous, 15-20 cm long with flowers sessile, separated; bracts minute; ovary verrucose-glandular, styles laciniate from base. Capsules 2 mm long, verrucose-glandular; mature seeds not seen.

General distribution: Endemic to St. Lucia.

Acalypha indica L., Sp. Pl. **2:** 1003. 1753.

Lectotype: Herb. Hermann #341, Vol. **3:** 2 (BM).

Annual herb < 50 cm tall, simple or branched, pubescent with curved hairs. Leaves with petioles 3-9 cm long, glabrous; blades ovate to rhombic-ovate, 2-5 × 1.5-4 cm, base cuneate to subtruncate, apex acute, margin serrate, 3-nerved at base, membranaceous, glabrate; stipules triangular, pubescent, caducous. Spikes axillary, bisexual, 1-7 cm long; pistillate bracts clearly separated, suborbiculate, 7-12 mm wide, shallowly lobed to broadly dentate, accrescent; ovary pilose, style plumose-laciniate; staminate portion

1 cm long, ca. 20-flowered, allomorph flower present. Capsules 2 mm long, short-pilose; seeds ovoid, 1.5 mm long, puncticulate, brown.

GENERAL DISTRIBUTION: Native of Africa and Asia, established as a weed in the New World.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Guadeloupe!, La Désirade!, Marie Galante!, Martinique!, St. Lucia!, Grenada!.

COMMON NAME: Ti codinde.

Acalypha macrostachya Jacq., Pl. Hort. Schoenbr. **2:** 63, *t. 245.* 1797.

Lectotype: Venezuela, Caracas, ibid. *t. 245.*

Shrub or small tree < 12 m tall, pubescent with long hairs. Leaves with petioles 5-26 mm long; blades ovate to triangular-ovate, 10-23 × 6-17 cm, base cordate to obtuse, apex acute, margin serrate, basal veins 3, membranaceous, sparsely glandular and pubescent; stipules ovate to linear-lanceolate, 10-15 mm long. Spikes axillary, sessile or short-peduncled; staminate to 15 cm long, densely flowered; pistillate < 40 cm long, bracts clearly separated, broadly ovate, < 7 mm wide, obtuse, margin 13-to 27-toothed or incised; ovary hispid, styles 10 to 20, laciniately divided from base, pilose. Capsules 4 mm long, pilose; seeds ovoid, 2 mm long, minutely punctulate, brown.

GENERAL DISTRIBUTION: Mexico, Central America, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Grenada!, known only from *Proctor 17532.*

Acalypha poiretii Sprengel, Syst. Veg. **3:** 879. 1826, nom. nov. for *Acalypha macrostachys* Poiret.

Type: American tropics, collector unknown (holotype, P-LA; IDC 6207. 594: I. 6, photo!).
Syn.: *Acalypha macrostachys* Poiret *in* Lam., Encycl. **6:** 208. 1804, non Jacq. (1797).

Annual herb < 50 cm tall, pubescence of stiff long hairs and short curved ones. Leaves with petioles 1.5-4 cm long; blades of variable size, ovate, 2.5-6 × 1-3 cm, base cuneate to rounded, apex acute, margin serrate-crenate, basal veins 3, membranaceous, hirsute on both surfaces; stipules narrowly triangular to linear, 1-2 mm long, caducous. Inflorescences axillary, bisexual, sessile or short-peduncled; staminate portion > 1 cm long, few-flowered, allomorph flower present. Capsules 2 mm long, verrucose, sparsely pubescent; seeds ellipsoidal, 1 mm long, smooth, black.

GENERAL DISTRIBUTION: Old World native, introduced occasionally and persisting as a weed in the New World.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Kitts!, Montserrat!, Marie Galante!, the Grenadines!, Barbados.

Acalypha villosa Jacq., Enum. Syst. Pl. 32. 1760; Select. Stirp. Amer. Hist. 254, *t. 183, fig. 61.* 1763.

Lectotype: loc. cit. *t. 183, fig. 61.*

Shrub < 1 m tall, pubescence of short, curved, appressed hairs. Leaves with petioles 6-12 cm long; blades ovate to triangular-ovate, 8-18 × 5-12 cm, base truncate to rounded or broadly cuneate, apex long-acuminate, margin crenate, strongly 3-nerved at base, membranaceous, pilose and glandular; stipules subulate, < 2 mm long, glabrous or slightly pubescent. Inflorescences axillary; staminate portion 3-13 cm long, densely flowered; pistillate paniculate, occasionally with staminate flowers near apex, bracts subtending pistillate flowers minute, flowers sessile; ovary verrucose-glandular, styles 5 to 10, laciniate. Capsules 2.5 mm long, muricate; seeds subglobose, 1 mm long, tan or light brown.

General distribution: Central America, South America.

Distribution in Lesser Antilles: Grenada!.

Notes: The original illustration is of but a single leaf and a neotype should be selected. Specimens from Central America and South America identified as this species may have spicate or, rarely, paniculate inflorescences, and collections from Grenada may have both types on one plant. Field observations are desired on this species. One of the Lesser Antillean collections seems unusual in having staminate flowers at the upper portions of a seemingly pistillate inflorescence.

Acalypha vincentina Urban, Repert. Spec. Nov. Regni Veg. **28:** 222. 1930.
Figure 4.

Type: St. Vincent, *Eggers 6566* (holotype B, presumably destroyed).

Shrub < 3 m tall, pubescence short and appressed. Leaves with petioles 1.5-7.5 cm long; blades ovate to elliptic, 8-17 × 3-7.5 cm, base obtuse, truncate, or slightly cordate, apex cuspidate or long-acuminate, margin crenate, 3- to 5-nerved at base, membranaceous, sparsely pilose on both surfaces; stipules linear-lanceolate to filiform, 7-10 mm long. Inflorescences axillary; staminate spikes subsessile, 4-5 cm long, densely flowered; pistillate spikes paniculate, < 10 cm long, peduncle 7-25 mm long, flowers on pedicels 1-2 mm long, bracts 1.2 mm long, generally 3-parted; ovary 1.2 mm long, tuberculate, styles 3.5 mm long, laciniate, bright red, verrucose. Capsules 1.5 mm long, red, tuberculate; seeds ovoid to globose, 1 mm long, light brown.

General distribution: Endemic to St. Vincent.

Note: The majority of the specimens appear to bear but one sex. However, Proctor has noted on his collection *#25907* that staminate and pistillate flowers are on separate branches of one plant.

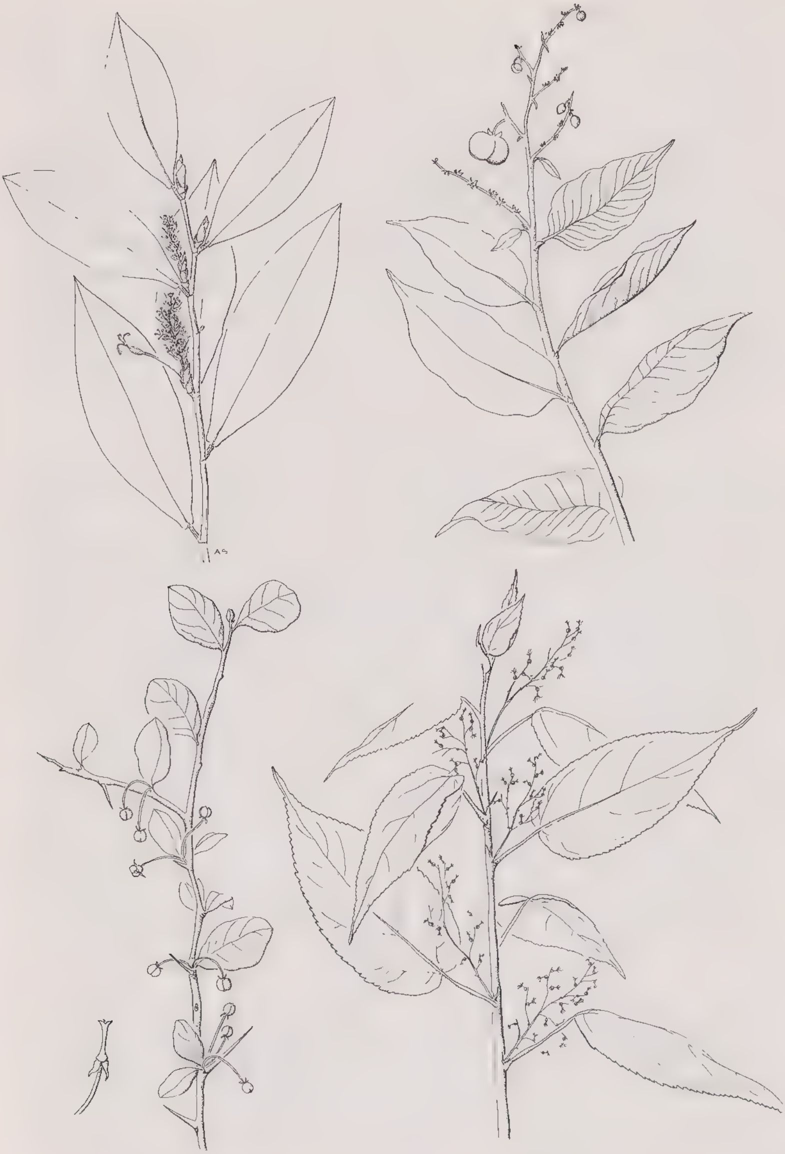


FIGURE 1 (upper left). *Actinostemon caribaeus,* × 0.35. FIGURE 2 (upper right). *Amanoa caribaea,* × 0.35. FIGURE 3 (lower left). *Adelia ricinella,* × 0.35. FIGURE 4 (lower right). *Acalypha vincentina,* × 0.35.

ACTINOSTEMON C. Martius ex Klotzsch

Actinostemon C. Martius ex Klotzsch *in* Wiegmann, Arch. Naturgesch. **7:** 184. 1841.

Monoecious trees or shrubs, glabrous. Leaves alternate, petiolate; blades pinnately veined, coriaceous; stipules broadly ovate, disintegrating or caducous. Inflorescences axillary, staminate or pistillate together in one axil or separate, enclosed in a series of broad, elongate scales resembling a strobilus, these deciduous; apetalous; staminate flowers with phalanges of stamens subtended by a bract, pistillode wanting; pistillate flower solitary, on short-bracteate peduncle, pistil long-stipitate, sepals 4 or 5, small, distinct, ovary 3-lobed, glabrous, ovules 1 per locule, styles united in a short column, stigmas terete, recurved. Capsules dehiscent with persistent columella; seeds 1 per locule, carunculate.

TYPE: *Actinostemon grandifolius* Klotzsch.

For additional information see E. Jablonski, Phytologia **18:** 213-240. 1969, who considers *Actinostemon* to be a genus of 13 species occurring in Pinar del Rio, Cuba, the Lesser Antilles, and South America.

NOTES: Klotzsch described the genus in a publication seen only as a reprint. The generic description cited no species but the explanation of the accompanying plate cited *Actinostemon grandifolius* Klotzsch in sufficient detail to constitute a description. *Actinostemon grandifolius* Klotzsch is given as the type in Index Nomen Genericorum. In his monograph Jablonski cited *Actinostemon concolor* (Sprengel) Muell. Arg. as the type and listed *Actinostemon grandifolius* (Muell. Arg.) Pax in the synonymy of *Actinostemon lundianus* (Didr.) Pax. Pax *in* Engl. (Pflanzenr. IV. **147** (Heft 52): 61. 1912), considered Klotzsch's publication of *A. grandifolius* a "nomen" and attributed the specific epithet to a later publication by Mueller Aargau.

Actinostemon caribaeus Griseb., Abh. Königl. Ges. Wiss. Göttingen **7:** 168. 1857; Syst. Veg. Karaiben 20. 1857. FIGURE 1.

Type: Guadeloupe, *Duchassaing s.n.* (holotype, GOET).
Syn.: *Excoecaria caribaea* (Griseb.) Griseb., Fl. Brit. W. Indian Is. 51. 1859.
Actinostemon concolor (Sprengel) Muell. Arg. var. *caribaeus* (Griseb.) Muell. Arg. *in* DC., Prodr. **15**(2): 1193. 1866.

Shrubs or small trees 3-4 m tall. Leaves with petioles 7-10 mm long; blades elliptic, lanceolate to elliptic-obovate, 6-11 × 1.5-4 cm, base attenuate or cuneate but ultimately cordate, apex acute to acuminate-cuspidate, margin entire, conspicuously paler below and biglandular near base; stipules ovate, 3 mm long, early caducous. Staminate spikes 1.5-4 cm long, flowers bracteate; pistillate flowers solitary on bracteate peduncles to 1 cm long, stipitate base to 2 cm long. Capsules smooth, 1 cm in diameter; seeds 5 to 7, 4 × 3 mm, brown or variegated, shiny, caruncle white.

GENERAL DISTRIBUTION: Venezuela.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Barbados!.

COMMON NAME: Bois fricassé.

ADELIA L.

Adelia L., Syst. Nat. ed. 10, **2:** 1285, 1289. 1759, nom. cons.

Dioecious trees or shrubs, branches often spinescent. Leaves clustered on short-shoots, petiolate; blades entire, pellucid-punctate; stipules minute. Inflorescences axillary, clustered; staminate flowers short-pedicellate, calyx lobes 4 or 5, disc annual, fleshy, stamens 8 to 15, united at base, pistillode wanting; pistillate flowers long-pedicellate, calyx lobes 5 or 6, reflexed, disc annual, ovary pubescent, ovules 1 per locule, styles free from base, deeply laciniate. Capsules dehiscent; seeds smooth, ecarunculate.

TYPE: *Adelia ricinella* L., typ. cons.

A genus of 10 species of tropical America.

Adelia ricinella L., Syst. Nat. ed. 10, **2:** 1298. 1759. FIGURE 3.

Type: LINN 1201.2 ex Fawcett & Rendle, possibly from P. Browne.
Syn.: *Adelia pedunculosa* A. Rich. *in* Sagra, Hist. Fis. Cuba, Bot. Tome **11:** 210. 1850. (Type: Cuba, *Sagra s.n.* (holotype, P).)
Ricinella pedunculosa (A. Rich.) Muell. Arg., Linnaea **34:** 154. 1865.
Ricinella ricinella (L.) Britton & P. Wilson, Bull. New York Bot. Gard. **8:** 395. 1917.

Shrub or small tree < 5 m tall, shoots silky pubescent; bark characteristically white; branches modified as thorns > 2 cm long. Leaves with petioles 1-5 mm long; blades obovate to oblong, 1-7 × 1.5-2.5 cm, base narrowed, apex obtuse, rounded, or acute, membranous, pellucid-dotted, sparsely puberulent to glabrate; stipules ovate, 2 mm long. Staminate flowers with pedicels > 1 cm long, sepals 2-3 mm long, stamens 8 to 15; pistillate flowers on pedicels > 3 cm long, ovary tomentose. Capsules deeply 3-lobed, 6-8 mm in diameter; seeds globose, 3-4 mm in diameter, brown.

GENERAL DISTRIBUTION: Greater Antilles, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Grenada!.

NOTE: The Grenada record is a collection of *W. E. Broadway 1764* made in Lowther's Wood, St. George's, April 9, 1905. This location was near the Botanic Garden but there is no evidence the taxon was introduced. It has not been recollected in Grenada.

AMANOA Aublet

Amanoa Aublet, Hist. Pl. Guiane **1:** 256. 1775.

Monoecious trees, glabrous. Leaves alternate, petiolate; blades entire, coriaceous; stipules intrapetiolar, persistent. Inflorescences axillary, bracteate at base, flowers clustered; staminate sessile with free stamens, pistillode present; pistillate stipitate with ovary 3-carpellate, ovules 2 per locule, stigmas sessile, thick, shallowly bifid, reflexed; sepals 5, larger than petals, disc present. Fruits capsular, tardily dehiscent, endocarp thick, corky, columella stout; seeds 1 per locule, ovoid or ellipsoid, smooth, ecarunculate.

TYPE: *Amanoa guianensis* Aublet.

A genus of 7 species in tropical America and 3 in tropical Asia.

Amanoa caribaea Krug & Urban, Notizbl. Königl. Bot. Gart. Berlin **1:** 326. 1897; *in* Duss, Fl. Phan. Antill. Franç. 21. 1897. FIGURE 2.

Syntypes: Guadeloupe and Dominica, several collections cited.

Tree to 30 m tall, 1-2 m in diameter, with buttressed roots. Leaves with petioles 5-7 mm long; blades ovate to oblong, 6-10 × 3.5-4.5 cm, base obtuse and slightly decurrent on petiole, apex short-acuminate, thin-coriaceous, turning black on drying; stipules broad, 3-4 × 7 mm. Inflorescences axillary or terminal, < 10 cm long, flower clusters bracteate; staminate flowers several in each cluster, subsessile; pistillate single, stipe in fruit to 2 cm long. Capsules globose, 2-2.5 cm in diameter, columella 10-15 mm long; seeds ovoid, 14-16 × 9-10 mm, brown.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!.

COMMON NAMES: Carapate, carapite, bois rouge, paleturier gris.

ARGYTHAMNIA P. Browne

Argythamnia P. Browne, Civ. Nat. Hist. Jamaica 338. 1756.

Syn.: *Ditaxis* M. Vahl ex Adr. Juss., Euphorb. Gen. 27, *t. 7, fig. 24.* 1824. Type: *Ditaxis fasciculata* Adr. Juss.

Monoecious, woody perennials or subshrubs, stems prostrate or erect, with malpighiaceous hairs or glabrate. Leaves alternate, petiolate to subsessile; blades entire or toothed; stipules present. Inflorescences axillary, bracteate, shorter than leaves; pistillate flowers proximal with 5 glands opposite sepals on a disc, ovary 3-carpellate, sessile, subglobose, ovules solitary in each locule, styles 3, fused below, 2- or 3-fid, often pubescent; staminate flowers distal, stamens 4, or stalked clusters to 10; sepals 4 or 5, valvate; petals 4 or 5, entire, sublacerate or irregularly lobed, conspicuous to reduced or wanting. Capsules 3-lobed, hirsute or pilose, calyx often accrescent in fruit; seeds 3, globose, ecarunculate.

TYPE: *Argythamnia candicans* Sw.

A neotropical genus of perhaps 80 to 90 species when circumscribed in a broad sense following Ingram (1980). For additional information see J. Ingram, Gentes Herb. **10:** 1-38. 1967, and **11:** 427-436. 1980.

KEY TO THE SPECIES

1. Leaves 1-2 cm long, apex rounded or emarginate . . . . *A. fasciculata*
1. Leaves larger, mostly 3-11 cm long, apex acute to acuminate.
   2. Leaves entire or with few glandular teeth, usually red-purple below; stamens 4; petals inconspicuous; calyx not accrescent in fruit; capsules densely hirsute . . . . *A. candicans*
   2. Leaves serrate, generally concolorous; stamens 10; petals white, conspicuous; calyx accrescent in fruit; capsules pilose to glabrescent . . . . . . *A. polygama*

Argythamnia candicans Sw., Prodr. 39. 1788; Fl. Ind. Occid. 1: 336. 1797.

Lectotype: Jamaica, *Swartz s.n.* (s).

Prostrate to suberect, branched woody shrub. Leaves with petioles 1.5-2.5 mm long; blades narrowly elliptic or narrowly obovate, 1.3-8.5 × 0.9-3.6 cm, base rounded to acute, apex acuminate to acute, mucronulate, margin entire or with few glandular teeth, usually red-purple below, woolly to sericeous, becoming glabrescent above; stipules triangular, < 2 mm long. Staminate flowers with 4 sepals, 1-2 × 0.7-1 mm, petals inconspicuous, stamens 4; pistillate flowers with densely hirsute ovary, styles 3-fid. Capsules 3-4 × 5-6 mm, densely hirsute, without accrescent calyx; seeds globose, 2 mm in diameter, with regular reticulate markings.

GENERAL DISTRIBUTION: Bahamas, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Guadeloupe!, Martinique!.

Argythamnia fasciculata (M. Vahl ex Adr. Juss.) Muell. Arg., Linnaea **34:** 146. 1865. FIGURE 5.

Basionym: *Ditaxis fasciculata* M. Vahl ex Adr. Juss., Euphorb. Gen. 110, *pl. 7, fig. 24.* 1824.

Type: St. Thomas, *Ledru 121* (holotype, P-JU #16260; IDC 6206, 1178: I. 5, photo!).

Shrub to 1 m tall, bark nearly white. Leaves with petioles < 1 mm long; blades oblong-oblanceolate to spatulate, 1-2 × 0.5-0.8 cm, base narrowed, apex rounded or emarginate, 3-veined at base; stipules ovate, 1 mm long. Staminate flowers with 10 stamens in 2 series; pistillate flowers with ovary 3-lobed, pilose, styles 2-cleft, pilose. Capsules 5-6 mm long, pilose; seeds globose, 3 mm in diameter, brown or mottled.

GENERAL DISTRIBUTION: Cuba, Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!.

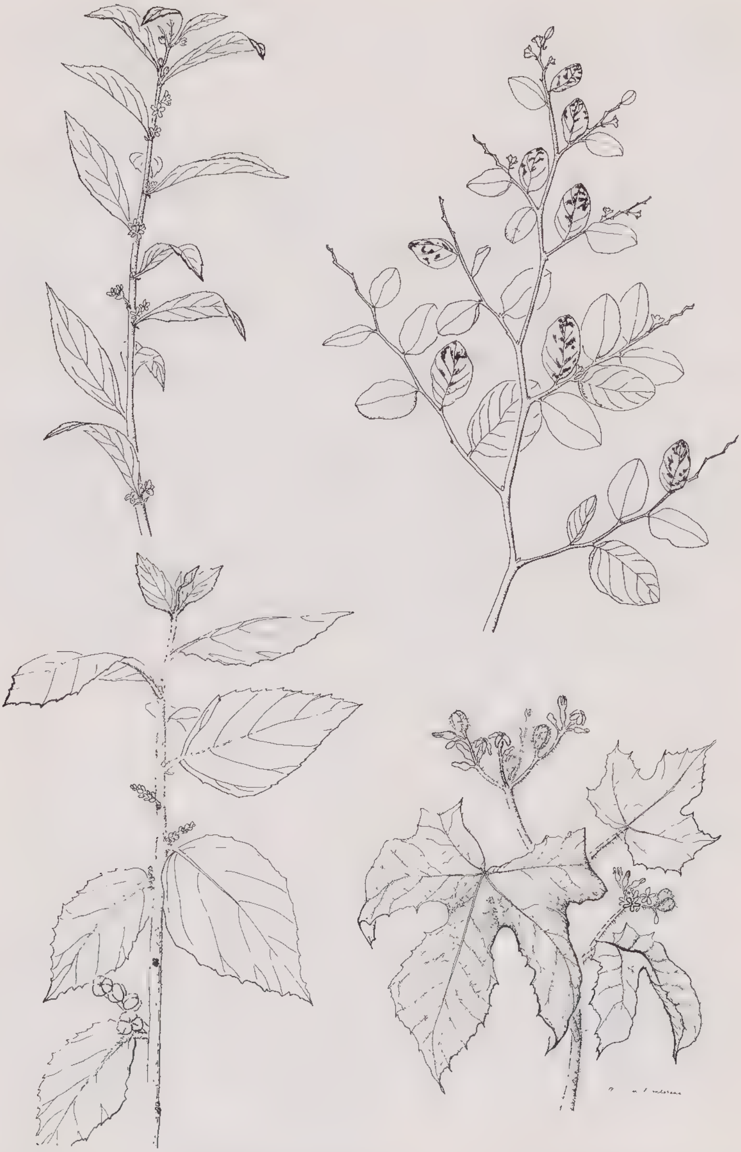


FIGURE 5 (upper left). *Argythamnia fasciculata*, × 0.35. FIGURE 6 (upper right): *Breynia disticha*, × 0.35. FIGURE 7 (lower left). *Bernardia dichotoma*, × 0.35. FIGURE 8 (lower right). *Cnidoscolus urens*, × 0.35.

Argythamnia polygama (Jacq.) Kuntze, Revis. Gen. Pl. **2:** 593. 1891.

Basionym: *Croton polygamus* Jacq., Enum. Syst. Pl. 32. 1760; Select. Stirp. Amer. Hist. 255. 1763.

Type: Colombia, Cartagena, *Jacquin s.n.*

Syn.: Ditaxis lancifolia Schldl., Linnaea **26:** 635. 1855. (Type: Colombia, *Wagener 320.*)

Ditaxis glabella Griseb., Abh. Königl. Ges. Wiss. Göttingen **7:** 171. 1857; Syst. Veg. Karaiben 23. 1857. (Type: Guadeloupe, *Duchassaing s.n.* (holotype, GOET).)

Argythamnia lancifolia (Schldl.) Muell. Arg. Linnaea **34:** 145. 1865.

Ditaxis polygama (Jacq.) Wheeler, Contr. Gray Herb. **124:** 39. 1939.

Shrub to 1 m tall. Leaves with petioles < 5 mm long; blades broadly elliptic to lanceolate, 3-11 × 0.5-4 cm, base cuneate, apex acuminate, margin serrate, generally concolorous; stipules ovate-lanceolate, 2 mm long, membranaceous. Staminate flowers several, sepals 3-5 mm long, petals white, < 6 mm long, stamens 10; pistillate flower solitary, long-stipitate, sepals 5 mm long, becoming accrescent in fruit to 2 cm long, petals < 5 mm long, white, ovary loosely pilose. Capsules 6-8 mm in diameter, sparsely pilose to glabrescent; seeds subglobose, 4 mm in diameter.

GENERAL DISTRIBUTION: Trinidad, Venezuela, Colombia.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Martinique, St. Lucia!, St. Vincent!, the Grenadines!, Barbados!.

COMMON NAME: Bois d'argent.

BERNARDIA Miller

Bernardia Miller, Gard. Dict. abr. ed. 4. 1754.

Monoecious or dioecious shrubs, indument of simple and/or stellate hairs. Leaves alternate, petiolate; blades simple, pinnate or trinerved at base, with axillary discoid glands at base or occasionally on blade, serrate; stipulate. Inflorescences axillary or terminal, shorter than leaves. Staminate flowers in spikes, flowers clustered in axils of separated bracts, articulated to persistent pedicels, sepals 4 or 5, stamens 3 to 20, filaments free, pistillode wanting; pistillate flowers in short racemes, each subtended by 1 to several imbricate bracts, calyx of 4 or 5 sepals, ovary of 3 carpels, ovules 1 per locule, styles short, bifid or divided. Capsules dehiscent, columella persistent and winged; seeds triangular, ecarunculate.

LECTOTYPE: *Adelia bernardia* L. = *Bernardia dichotoma* (Willd.) Muell. Arg.

A neotropical genus of 30 species. For additional information see G. Buchhein, Willdenowia **2:** 291-318. 1960 and **3:** 217-220. 1962.

NOTE: The homonymous name *Adelia* P. Browne, 1756, is rejected in favor of the conserved *Adelia* L., 1759, q.v.

KEY TO THE SPECIES

1. Mature plants pubescent; dioecious.
    2. Pubescence of stellate and simple hairs .... *B. dichotoma*
    2. Pubescence of dense strigose hairs .... *B. laurentii*
1. Mature plants glabrous; monoecious .... *B. corensis*

Bernardia corensis (Jacq.) Muell. Arg., Linnaea **34:** 173. 1865.

Basionym: *Acalypha corensis* Jacq., Enum. Syst. Pl. 32. 1760; Select. Stirp. Amer. Hist. 254, *t. 161.* 1763.
Type: Jacq., loc. cit. *t. 161.*
Syn.: *Polyboea corensis* (Jacq.) Klotzsch ex Endl., Gen. Pl. Suppl. 4(2): 88. 1848.

Monoecious shrub or small tree to 4 m tall, sparsely pubescent with simple hairs when young, glabrous at maturity. Leaves with petioles 3 mm long; blades generally obovate or elliptic to oblong, 4-10.5 × 2-5 cm, base cuneate, apex obtuse, margin serrate, trinerved at base, pinnately veined above, with basal discoid glands; stipules setaceous, to 2 mm long, glabrous. Staminate inflorescences > 4 cm long, geniculate, stamens 9; pistillate inflorescences racemose, of 3 or 4 flowers. Capsules globose, 8 mm in diameter; seeds angular, 4 × 6 mm, red or brown.

GENERAL DISTRIBUTION: Lesser Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, St. Eustatius!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAME: Ti bois lait.

NOTE: The majority of specimens, if old enough, are predominately staminate with a terminal pistillate inflorescence or a fruit.

Bernardia dichotoma (Willd.) Muell. Arg., Linnaea **34:** 172. 1865.

FIGURE 7.

Basionym: *Croton dichotomus* Willd., Sp. Pl. **4:** 537. 1805.
Type: Santo Domingo (B-W #17857; IDC 7440. 1292: I. 1, photo!).
Syn.: *Adelia bernardia L.*, Syst. Nat. ed. 10, **2:** 1298. 1759. (Type: Jamaica, LINN 1201.1).
    Bernardia carpinifolia Griseb., Fl. Brit. W. Indian Is. 45. 1859, nom. superfl.
    Bernardia dichotoma (Willd.) Muell. Arg. var. *carpinifolia* (Griseb.) Pax & K. Hoffm. *in* Engl., Pflanzenr. IV. **147** (Heft 63): 23. 1914.

Dioecious shrubs or small trees > 4 m tall, diffusely branched, all parts with golden pubescence of simple hairs and stellate clusters. Leaves with petioles 1-2 cm long; blades ovate-oblong, 4-10 × 3-7 cm, base rounded, apex acute or bluntly so, margin coarsely and irregularly obtusely serrate, discoid glands in axils of lower veins; stipules setaceous. Staminate inflorescences sessile, 6-17 mm long, stamens 15 to 25; pistillate inflorescences > 2 cm long, styles several times divided. Capsules globose, 9 × 5 mm, densely appressed pubescent; seeds ovoid-globose, > 6 mm long, edges rounded, brown with darker markings.

GENERAL DISTRIBUTION: Bahamas, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!, the Grenadines!, Grenada!.

Bernardia laurentii R. Howard, Phytologia **61:** 2. 1986.

Type: St. Lucia, summit of Petit Piton, *V. Slane & L. Jn.-Pierre 721* (holotype, A).

Dioecious shrub, compactly branched, all parts densely strigose pubescent. Leaves with petioles 3-4 mm long; blades ovate-lanceolate, 3.5-7 × 2-3.5 cm, base tapering or rounded or cuneate, apex acute, margin bluntly serrate, trinerved at base, discoid glands present; stipules setaceous, caducous. Staminate inflorescences 1.5-2 cm long, bracteate flowers clustered, clearly separated, stamens 10 or 11; pistillate inflorescences 5-6 mm long with 3 or 4 thick, imbricate bracts subtending each flower, calyx 4- or 5-parted, styles thick and separated. Capsules depressed globose, 1 × 0.6 cm; seeds triangular, 4 × 6 mm, mottled brown.

GENERAL DISTRIBUTION: Known only from the collections on the summit of Petit Piton, St. Lucia.

BREYNIA Forster & Forster f.

Breynia Forster & Forster f., Char. Gen. Pl. 73. 1775, nom. cons.

Monoecious shrubs with distichous branches, glabrous. Leaves alternate, petiolate; blades simple, entire; stipules small. Inflorescences axillary, flowers apetalous. Staminate flowers basal, in fascicles of 3 to many, calyx fleshy, obovoid-turbinate, 6-lobed, stamens 3, filaments fused; pistillate flowers distal, solitary, pedunculate, calyx campanulate, 6-lobed, accrescent, ovary 3-locular, each locule with 2 ovules, stigmas small, incurved. Capsules dehiscing into 2-seeded cocci; seeds slightly fleshy.

TYPE: *Breynia disticha* Forster & Forster f.

A genus of 25 species of China and southeast Asia to Australia.

Breynia disticha Forster & Forster f., Char. Gen. Pl. 146. 1775.
FIGURE 6.

Type: ibid. *t. 73.*
Syn.: *Phyllanthus nivosus* W. Bull, Cat. 9. 1873. (Type: Cultivated plant from New Hebrides.)
Phyllanthus nivosus roseo-pictus Regel, Gartenflora **28:** 21, unnumbered *fig.* 1879. (Type: the illustration.)
Breynia nivosa (W. Bull) Small, Bull. Torrey Bot. Club **37:** 516. 1910.
Breynia nivosa (W. Bull) Small var. *roseo-picta* F. Brown, Bernice P. Bishop Mus. Bull. **130:** 137. 1935.

Shrub > 2 m tall. Leaves with petioles 2-3 mm long; blades oblong, elliptic, or ovate, 2-4 × 1.5-3 cm, base rounded to subtruncate, apex obtuse or rounded, distal leaves on branches variegated with green, white, pink, or purple; stipules ovate, 1.5 mm long, acuminate. Staminate calyx greenish yellow; pistillate calyx white with green lines, lobes of calyx in fruit to 5 mm long, ovary glabrous. Capsules fleshy, depressed, > 1.3 cm in diameter.

GENERAL DISTRIBUTION: Commonly cultivated in tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Kitts!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Barbados!.

COMMON NAMES: Snow bush, old man's beard, la neige.

NOTES: Probably represented on all of the islands as a cultivated plant but clearly naturalized as well. Very poorly represented in herbaria.

The exact origin of this plant is uncertain and the cultivated plants are best designated as var. or cv. roseo-picta. Native material from the New Hebrides has only green leaves.

CAPERONIA A. St. Hil.

Caperonia A. St. Hil., Hist. Pl. Remarq. Brésil 244. 1824.

Monoecious, annual or perennial herbs, stems often hollow, glandular pubescent to glabrous. Leaves alternate, petiolate; blades simple, margin serrate; stipulate. Inflorescences spicate, bracteate, flowers all widely separated. Staminate flowers distal in inflorescence, calyx 5-parted, valvate, petals 5, stamens 10 in 2 whorls, pistillode present; pistillate flowers few, proximal, calyx segments 5 or 6, imbricate, petals 5 or 6, ovary 3-lobed, ovules 1 in each locule, styles 3, fimbriate. Capsules 3-lobed, muricate or spinulose, dehiscent; seeds spherical, ecarunculate.

TYPE: *Croton castaneifolium* L. = *Caperonia castaneifolia* (L.) A. St. Hil.

A genus of about 30 species of tropical America and Africa. Characteristically in wet or swampy areas.

KEY TO THE SPECIES

Plants conspicuously long-pubescent, each hair tipped with a gland .... *C. palustris*
Plants glabrous or with appressed eglandular hairs .... *C. castaneifolia*

Caperonia castaneifolia (L.) A. St. Hil., Hist. Pl. Remarq. Brésil 245. 1824.

Basionym: *Croton castaneifolium* L., Sp. Pl. **2:** 1004. 1753.
Type: Not resolved.

Annual herb > 0.6 m tall, stems often trailing and rooting, pubescent with short appressed hairs or glabrous. Leaves with petioles 6-15 mm long; blades variable in size and shape, linear-lanceolate to elliptic or oblong, 3-10 × 0.8-3 cm, base rounded, apex acuminate to rounded, margin sharply serrate. Spikes > 4 cm long, pistillate flowers 1 to 3; bracts broadly triangular; calyx segments 5 or 6, mostly ovate-oblong with alternate ones often smaller; petals

5, slightly exceeding sepals, white; ovary with broad-based projections, these sometimes glandular-tipped. Capsules 7-8 mm in diameter; seeds spheroidal, pale to dark brown.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Reported only by Gooding et al. (1965) as a weed in Barbados.

Caperonia palustris (L.) A. St. Hil., Hist. Pl. Remarq. Brésil 245. 1824.
FIGURE 9.

Basionym: *Croton palustris* L., Sp. Pl. **2:** 1004. 1753.
Type: Not determined.

Annual herb > 0.6 m tall, stems striate, setose to hispid with gland-tipped hairs at least above. Leaves with petioles 5-10 mm long; blades variable from linear-lanceolate to ovate or elliptic, 6-10 × 0.7-2.5 cm, base rounded to truncate, apex acuminate and apiculate to rounded, margin sharply serrate. Inflorescences > 7 cm long, pistillate flowers 1 to 3; bracts broadly triangular; calyx of 5 or 6 segments, > 2.5 mm long; petals 5, usually equaling the calyx lobes, white; ovary strigose and densely glandular muricate. Capsules 4.5-5 mm in diameter, strigose and muricate; seeds spheroidal, > 2.5 mm in diameter, brown.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Marie Galante!, Martinique!, St. Lucia!.

COMMON NAMES: Ortie grosse, ortis-savane, male coq d'Inde.

CHAMAESYCE Gray

Chamaesyce Gray, Nat. Arr. Brit. Pl. **2:** 260. 1821.

Annual or perennial herbs or small shrubs, branches usually prostrate or ascending, articulate or geniculate and zigzag. Leaves opposite, short petiolate; blades usually inequilateral and oblique at base, entire or variously toothed, membranous or fleshy, glabrous or variously pubescent; stipules minute, often joined, entire, ciliate, or lacerate. Inflorescences axillary or terminal, solitary, cymose, or glomerate; involucre stalked, glands 4, appendaged; staminate flowers 4 to 20, articulate; pistillate flower stalked or sessile, ovary 3-lobed, styles 3, divided to base or united below. Capsules barely exserted or extended and recurved, globose, 3-lobed, sinus shallow, broad or sharply angled, dehiscent into cocci; seeds ovoid or elongate-ovoid, usually 4-angled, faces smooth, pitted, or rugose or with transverse ridges and grooves.

TYPE: *Chamaesyce maritima* Gray = *Chamaesyce peplis* (L.) Prokh.

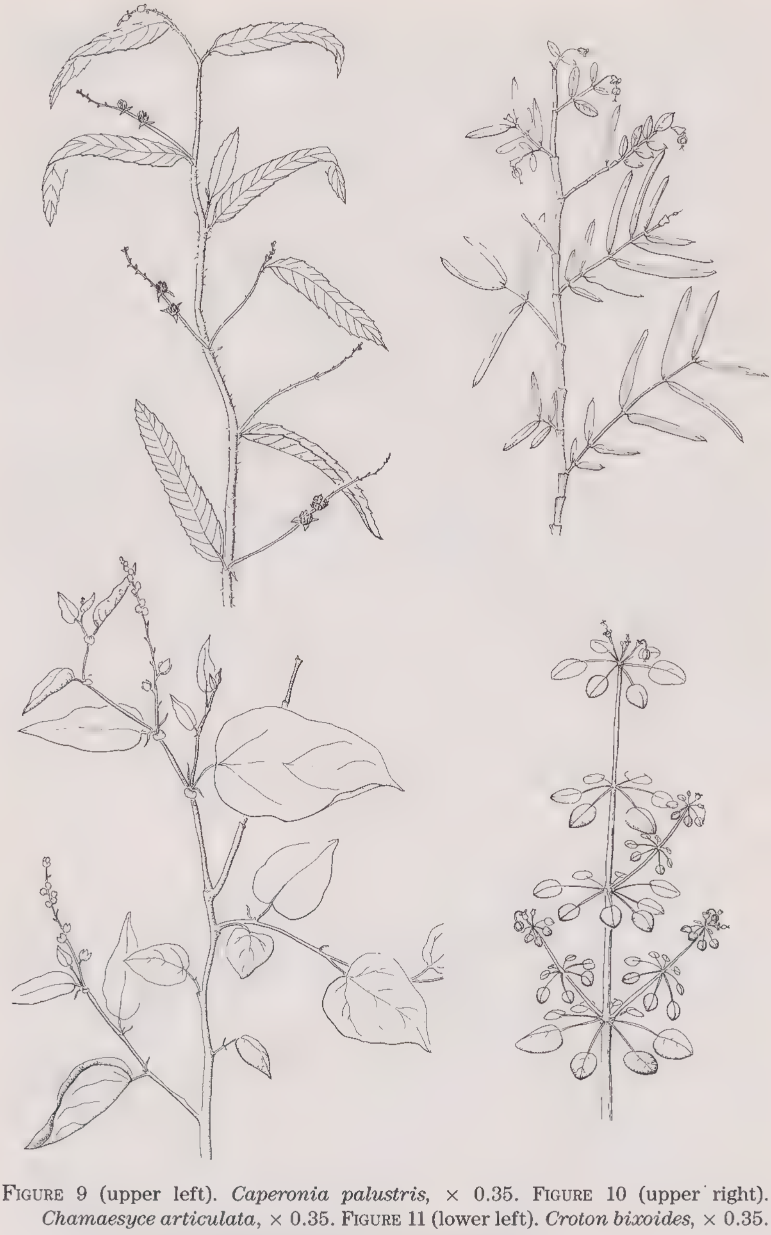


FIGURE 9 (upper left). *Caperonia palustris*, × 0.35. FIGURE 10 (upper right). *Chamaesyce articulata*, × 0.35. FIGURE 11 (lower left). *Croton bixoides*, × 0.35. FIGURE 12 (lower right). *Euphorbia petiolaris*, × 0.35.

A genus of perhaps 200 species primarily in the American tropics but occurring as weedy species through both tropic and temperate areas.

NOTES: The recognition of *Chamaesyce* Gray as a genus is controversial, and the most recent discussion by D. L. Koutnik, entitled "Chamaesyce—a newly recognized genus in southern Africa" (S. Afr. J. Bot. **3:** 262-264. 1984), summarizes the problem and the status of recognition in the literature. For modern floras of the Caribbean area the genus *Chamaesyce* has been accepted for the Generic Flora of the Southeastern United States (Webster, 1967), Puerto Rico (Britton & P. Wilson, 1924), Cayman Islands (Proctor, 1984), Dominica (Webster *in* Nicolson, ined.), and Panama (Burch, 1967), and was treated for the Caribbean islands as a group by Burch (1966). Species were treated in *Euphorbia* for the Bahamas (Correll & Correll, 1982), Jamaica (Adams, 1972), Barbados (Gooding et al., 1965), and Trinidad (Philcox, 1979).

KEY TO THE SPECIES

1. Erect woody shrubs.
  2. Plants much branched and divaricate, nodes conspicuously swollen; leaves variable, linear to oblong or elliptic, often on one plant..... *C. articulata*
  2. Plants low shrubs, sparsely branched, nodes not swollen; leaves ovate-elliptic, ascending, approximate and overlapping; plants of sandy coastal areas... *C. mesembrianthemifolia*
1. Herbaceous annuals, or plants with stout rootstocks.
  3. Stems erect or ascending.
    4. Capsules glabrous.
      5. Cyathia in almost leafless lateral and terminal glomerules, bractlike leaves reduced....................................... *C. hypericifolia*
      5. Cyathia in leafy lateral and terminal dichasia....... *C. hyssopifolia*
    4. Capsules pubescent.
      6. Leaves acute or acutish, margin sharply serrate; stems tomentose and with conspicuous, multi-cellular hairs.
        7. Glomerules axillary; multicellular hairs many.......... *C. hirta*
        7. Glomerules terminal; multicellular hairs few..... *C. ophthalmica*
      6. Leaves obtuse at apex, margin crenulate or denticulate.
        8. Leaves oblong; capsules densely tomentose....... *C. lasiocarpa*
        8. Leaves ovate; capsules strigose.................. *C. berteriana*
  3. Stems prostrate, spreading.
    9. Capsules glabrous; involucres mostly solitary.
      10. Roots thin, fibrous; stipules united, deltoid, scalelike, usually conspicuously white; stems rooting at nodes.............. *C. serpens*
      10. Rootstock stout; stipules more or less fused at base, ciliate above, not white; stems not rooting at nodes; involucres with conspicuous white hairs within.. *C. balbisii*
    9. Capsules pubescent.
      11. Leaves longer than broad, serrate.
        12. Capsules hirsute on edges only; leaves glabrous, apex obtuse.. *C. prostrata*
        12. Capsule puberulent; leaves pubescent.......... *C. thymifolia*
      11. Leaves orbiculate or broader than long, entire or slightly crenate, pilose or puberulent................................ *C. multinodis*

Chamaesyce articulata (Aublet) Britton, Mem. New York Bot. Gard. **6:** 574. 1916. Figure 10.

Basionym: *Euphorbia articulata* Aublet, Hist. Pl. Guiane **1:** 480. 1775.
Type: Martinique, Plum., Pl. Amer. *t. 251, fig. 2.* 1756.
Syn.: *Euphorbia linearis* Retz., Observ. Bot. **3:** 32. 1783. (Type: St. Croix, *Vahl* (C).)
Anisophyllum vahlii Klotzsch & Garcke, Monatsber. Königl. Preuss. Akad. Wiss. Berlin **1860:** 36. " 1860: 1860, n.v. (Type: Not determined.)
Chamaesyce linearis (Retz.) Millsp., Publ. Field Columbian Mus. Bot. Ser. **2:** 410. 1916.
Chamaesyce vahlii (?Willd.) P. Wilson, Bull. New York Bot. Gard. **8:** 395. 1917.

Erect shrub 1-3 m tall, divaricately branched with conspicuous swollen nodes, glabrous. Leaves with petioles 1-1.5 mm long; blades linear to broadly elliptic, often on same branch, 20-60 × 2-12 mm, base rounded, subequal, apex acute to obtuse, margin entire, subcoriaceous, glabrous or short-pubescent; stipules broadly deltoid, > 0.5 mm long, ciliate. Cyathia solitary with peduncles 5-7 mm long; involucre obconical, glabrous, glands broadly elliptic, to 1 mm long; gynophore to 3 mm long, exserted, ovary glabrous. Capsules ovoid or conical, 2-3 × 2-3 mm, glabrous; seeds 1.8-2 mm long, surface pitted and wrinkled, brown.

General distribution: Bahamas, Puerto Rico.

Distribution in Lesser Antilles: St. Martin!, Barbuda!, Antigua!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!, Les Saintes!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!.

Common name: Bois lait.

Chamaesyce balbisii (Boiss.) Millsp., Publ. Field Columbian Mus., Bot. Ser. **2:** 408. 1916.

Basionym: *Euphorbia balbisii* Boiss., Cent. Euphorb. 11. 1860.
Type: Guadeloupe, *Bertero s.n.* (holotype, G).

Herb, stems filiform, prostrate, glabrous; rootstock stout. Leaves with petioles > 1 mm long; blades ovate-rotund, base unequally cordate, apex retuse, margin slightly denticulate to entire; stipules more or less fused at base, toothed, ciliate above, not white. Cyathia axillary, solitary, glabrous, conspicuously white-pubescent within, glands white-margined. Capsules glabrous, 3-lobed; seeds oblong, 4-angled, minutely rugulose.

General distribution: Restricted to the Lesser Antilles.

Distribution in Lesser Antilles: Barbuda!, Antigua!, Guadeloupe!, La Désirade!.

Note: The original description is without a specific locality. Fournet (1978) attributes this to the area of the lighthouse at Vieux Fort on Guadeloupe, the Bahamas, and here and there in the Antilles. However, he states that the capsule is more or less hirsute on its surface, which is contrary to the original description. Fournet cites no material. Burch (1966) did not include this species in his key to *Chamaesyce* in the Caribbean.

Chamaesyce berteriana (Balbis) Millsp., Publ. Field Columbian Mus., Bot. Ser. **2:** 303. 1909.

Basionym: *Euphorbia berteriana* Balbis *in* Sprengel, Syst. Veg. **3:** 794. 1826.
Type: "Hispaniola Guadelupa, Bertero."

Annual decumbent, branches to 20 cm long, short brown tomentose. Leaves with petioles > 1 mm long; blades ovate-elliptic to oblong, 5-15 × 3-8 mm, base rounded, apex obtuse, margin crenulate, membranous, short-pilose; stipules distinct, linear, > 1 mm long, toothed. Cyathia in dense leafless clusters; involucre narrowly campanulate, < 0.7 mm long, strigose, glands subcircular, 0.2 mm in diameter; gynophore exserted, ovary pilose. Capsules elliptic, 1.5 mm in diameter, strigose; seeds long-cuneiform to 0.9 mm long, faces concave, transversely ridged, brown, red-brown, or gray.

General distribution: Bahamas, Cuba, Hispaniola, Puerto Rico, Mexico, Venezuela.

Distribution in Lesser Antilles: St. Barts!, Barbuda!, Antigua!, Guadeloupe!, La Désirade!, Martinique!.

Common name: Ti teigne.

Chamaesyce hirta (L.) Millsp., Publ. Field Columbian Mus., Bot. Ser. **2:** 303. 1909.

Basionym: *Euphorbia hirta* L., Sp. Pl. **1:** 454. 1753.
Lectotype: LINN 630.7.
Syn.: *Euphorbia pilulifera* L., Sp. Pl. **1:** 454. 1753. (Type: LINN 630.8).
Euphorbia globulifera Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **2:** 45 (ed. folio), 56 (ed. quarto). 1817. (Type: Venezuela, *Bonpland s.n.* (holotype, P; IDC 6209. **33:** I. 2, photo!).)

Annual, stems > 30 cm tall, sparingly branched, tomentose and with abundant multicellular hairs. Leaves with petioles 1-2 mm long; blades ovate to lanceolate, often rhombiform, 5-35 × 3-15 mm, base rounded to cuneate, unequal, apex obtuse to acute or acuminate, margin serrate, membranous, often with red or purple blotch, puberulent below; stipules distinct or joined, > 1 mm long, lacerate. Cyathia in dense terminal and axillary clusters with peduncles 6-15 mm long; involucre conical, > 0.3 mm long, glands minute, purple; gynophore > 1 mm long, exserted, ovary strigose. Capsules 1-1.2 mm long, strigose; seeds cuneiform, > 0.8 mm long, faces concave, transversely wrinkled or ridged, tan, red-brown, or gray.

General distribution: Possibly worldwide in the tropics.

Distribution in Lesser Antilles: St. Barts!, Antigua!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Malnommée vraie, zebe malnommée, herbe mal-nom.

Chamaesyce hypericifolia (L.) Millsp., Publ. Field Columbian Mus., Bot. Ser. **2:** 302. 1909.

Basionym: *Euphorbia hypericifolia* L., Sp. Pl. **1:** 454. 1753.
Lectotype: Sloane, Voy. Jamaica 197, *t. 126.* 1707.

Annual with erect or ascending stems to 40 cm tall, branching in upper portions, glabrous. Leaves with petioles > 1 mm long; blades ovate-elliptic to elliptic-obovate, sometimes falcate, 15-35 × 8-14 mm, base rounded or cuneate but unequal, apex acute, margin serrate, membranous, sometimes purple splotched above; stipules joined, sheathing, 1-1.5 mm long, margin serrate. Cyathia short-stalked, lateral or terminal, congested; involucre with stipulelike bracts, glands subcircular, > 0.1 mm long; staminate flowers 10 to 12 or fewer; gynophore to 1 mm long, exserted, ovary glabrous. Capsules subspherical, > 1.2 mm long, glabrous; seeds ovoid, > 0.8 mm long, 4-sided, faces flat or convex, wrinkled, light brown.

GENERAL DISTRIBUTION: Florida, Greater Antilles, Mexico, Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Barbuda!, Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Malnommee verte, ti lait.

Chamaesyce hyssopifolia (L.) Small, Bull. New York Bot. Gard. **3:** 429. 1905.

Basionym: *Euphorbia hyssopifolia* L., Syst. Nat. ed. 10, **2:** 1048. 1759.
Type: LINN 630.9.
Syn.: *Euphorbia brasiliensis* Lam., Encycl. **2:** 423. 1788. (Type: Brazil, *Commerson s.n.* (holotype, P-LA; IDC 6207. 580: I. 7, photo!).)

Annual, erect or ascending branches to 60 cm tall, glabrous or sparsely pubescent. Leaves with petioles 1-2 mm long; blades linear-lanceolate to ovate-elliptic, often falcate, 15-35 × 3-6 mm, base rounded or subcordate, unequal, apex acute to obtuse, margin serrate, membranous; stipules free, deltoid, > 0.8 mm long, ciliate. Cyathia terminal and axillary in short-stalked, diffuse or compact dichasia; involucre 0.7-1 mm long, glabrous, glands elliptic to circular, 0.1-1.3 mm long; gynophore > 1 mm long, exserted, ovary glabrous. Capsules cuneiform to broadly ovoid, 1.5-2 mm long; seeds oblong-ovate, to 1 mm long, faces flat, with transverse ridges, brown or black.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, Montserrat!, Guadeloupe!, Dominica!, St. Lucia!, St. Vincent!, Grenada!.

Chamaesyce lasiocarpa (Klotzsch) Arth., Torreya **11:** 260. 1911.

Basionym: *Euphorbia lasiocarpa* Klotzsch, Nov. Actorum Acad. Caes. Leop.-Carol. Nat. Cur. **19** (suppl. 1): 414. 1843.
Type: Peru, *Meyen s.n.* (n.v.).

Annual, erect or ascending to 1 m tall, branched throughout, densely tomentose. Leaves with petioles 2-3 mm long; blades ovate-lanceolate to obovate, sometimes falcate, 15-40 × 8-20 mm, base rounded to obtuse, unequal, apex acute to obtuse, margin denticulate, membranous, densely gray-pubescent, rarely glabrate; stipules joined, deltoid, > 1 mm long, toothed or ciliate. Cyathia solitary in lateral and terminal, short-stalked dichasia; involucre campanulate, 1.2 mm long, densely pubescent, glands elliptic 0.3 mm long; gynophore > 1 mm long, exserted, pilose, ovary strigose. Capsules broadly ovoid, 1.5-2 mm long, densely strigose; seeds oblong-ovoid, > 1 mm long, faces with deep transverse ridges or pitted, black.

GENERAL DISTRIBUTION: Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Barbados!.

Chamaesyce mesembrianthemifolia (Jacq.) Dugand, Phytologia **13:** 385. 1966.

Basionym: *Euphorbia mesembrianthemifolia* Jacq., Enum. Syst. Pl. 22. 1760; Select. Stirp. Amer. Hist. 150. 1763.
Type: Cartagena, *Jacquin s.n.* (material probably not extant).
Syn.: *Euphorbia buxifolia* Lam., Encycl. **2:** 421. 1788. (Type: "Plumier mss. *t. 4, fig. 2*," or Surian Herb. (P).)
Chamaesyce buxifolia (Lam.) Small, Fl. S.E. U.S. 711. 1903.

Perennial shrub, erect or ascending, to 60 cm tall, stems naked at woody base, without swollen nodes, glabrous. Leaves ascending, approximate and overlapping, with petioles 0.5-1 mm long; blades ovate to elliptic, 5-12 × 3-6 mm, base truncate to cordate, slightly unequal, apex obtuse, margin entire, fleshy, often folded, glabrous; stipules united, > 1 mm long. Cyathia solitary in upper nodes with peduncles to 0.5 mm long; involucre campanulate, > 0.7 mm long, glands elliptic, 0.5 mm long; gynophore to 3 mm long, glabrous, ovary glabrous. Capsules subspherical, 1.5-2 mm long, deeply 3-lobed, glabrous; seeds broadly ovoid, 1.3 mm long, faces convex, obscurely pitted, ash-colored.

GENERAL DISTRIBUTION: Bahamas, Greater Antilles, Venezuela, Colombia.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, St. Eustatius!, Montserrat!, Guadeloupe!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

NOTES: Burch (1966) commented: "With nothing more than Jacquin's description to typify the name *E. mesembrianthemifolia*, it would be irresponsible to accept it and upset the well-understood use of *C. buxifolia* which will be maintained here until some firm evidence supports a change." Nevertheless, Dugand had proposed the new combination and he has been followed in several floras. The species intended is unmistakable from Jacquin's description, but clearly a neotype should be selected.

Chamaesyce multinodis (Urban) Millsp., Publ. Field Columbian Mus., Bot. Ser. **2:** 410. 1916.

Basionym: *Euphorbia multinodis* Urban, Symb. Antill. **1:** 341. 1899.
Type: Guadeloupe, *Duss 2740* (holotype, B, destroyed).

Perennial, stems prostrate to 75 cm long, branched throughout, not rooting, glabrous on lower surface, tomentose or short-pilose above. Leaves with petioles 0.5-1 mm long; blades broadly ovate to orbiculate, 3-5 × 3-5 mm, base subcordate, oblique, apex blunt, obtuse or emarginate, margin obscurely crenate on upper half, membranous or subcoriaceous, pilose or puberulent; stipules joined, 3- to 5-cleft. Cyathia solitary in upper nodes with peduncle to 0.5 mm long; involucre campanulate, > 1 mm long, glands elliptic, 0.3 mm long, dark; gynophore > 1 mm long, exserted, ovary pilose. Capsules ovoid, 1.6 mm long, pilose; seeds oblong-ovoid, 1.1 mm long, faces flat or obscurely wrinkled, chestnut brown.

GENERAL DISTRIBUTION: Endemic to Guadeloupe and known from the type and one subsequent collection.

Chamaesyce opthalmica (Pers.) Burch, Ann. Missouri Bot. Gard. **53:** 98. 1966.

Basionym: *Euphorbia opthalmica* Pers., Syn. Pl. **2:** 13. 1806.
Type: Brazil, *Commerson 238* (n.v.).
Syn.: *Euphorbia procumbens* DC., Cat. Pl. Horti. Monsp. 111. 1813. (Type: not designated.)

Annual, branches erect or decumbent, to 15 cm tall, cymosely branched throughout, not rooting, densely tomentose with few long, multicellular hairs. Leaves with petioles > 1 mm long; blades elliptic, commonly rhombic, 7-15 × 3-7 mm, base rounded or cuneate, unequal, apex attenuate to acute, margin deeply serrate, membranous, commonly reddish; stipules distinct, attenuate, > 1 mm long. Cyathia glomerate in terminal leafless dichasia with peduncles > 1 mm long; involucre conical, > 0.3 mm long, glands minute, purple; gynophore > 1 mm long, exserted, ovary strigose. Capsules ovoid, > 1 mm long, strigose, seeds cuneiform, > 0.8 mm long, faces concave, obscurely transversely ridged or wrinkled, tan, red-brown, or gray.

GENERAL DISTRIBUTION: Florida, Bahamas, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, St. Eustatius!, Barbados!.

Chamaesyce prostrata (Aiton) Small, Fl. S.E. U.S. 713. 1903.

Basionym: *Euphorbia prostrata* Aiton, Hort. Kew **2:** 139. 1789.
Type: Cultivated plant, *Miller s.n.* (holotype, BM).
Syn.: *Euphorbia trichogona* Bertol., Misc. Bot. **3:** 20. 1844. (Type: Guadeloupe, *Bertero s.n.* (n.v.).)

Annual, stems > 20 cm long, prostrate, branching throughout, sparsely short-tomentose. Leaves with petioles > 1 mm long; blades obovate to broadly elliptic, 4-8 × 3-5 mm, base rounded, apex obtuse, margin serrate, membranous, green or purple, glabrous; stipules separate or united, > 0.5 mm long, toothed or lacerate. Cyathia solitary with peduncle > 0.5 mm long; involucre campanulate, glands elliptic, 0.1-0.3 mm long, red; staminate flowers 6, gynophore exserted, pilose, ovary strigose. Capsules ovoid, 1-1.4 mm long, angles acute with stiff spreading hairs; seeds cuneate-ovoid, > 0.9 mm long, faces flat or slightly concave, transversely ridged, gray.

GENERAL DISTRIBUTION: Florida, Bahamas, Mexico, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Barts!, Barbuda!, Antigua!, St. Kitts!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAME: Chickweed.

Chamaesyce serpens (Kunth) Small, Fl. S.E. U.S. 709. 1903.

Basionym: *Euphorbia serpens* Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **2:** 41 (ed. folio), 52 (ed. quarto). 1817.
Type: Venezuela, Cumana, *Bonpland 407*, (P; IDC 6209, **32:** II. 4, photo!.)
Syn.: *Euphorbia pileoides* Millsp., Publ. Field Columbian Mus., Bot. Ser. **2:** 62. 1900. (Type: Puerto Rico, Guanica, *Millspaugh 743* (holotype, F).)

Perennial with prostrate branches to 20 cm long, branched throughout, glabrous, often rooting at nodes with roots thin, fibrous. Leaves with petioles > 0.5 mm long; blades ovate to orbiculate, 2-6 × 1.5-4 mm, base rounded to subcordate, apex rounded, mucronulate or emarginate, margin entire, membranous, glabrous; stipules united, deltoid, > 0.5 mm long, toothed, white. Cyathia solitary at upper nodes with peduncle > 1 mm long; involucre campanulate, glabrous, glands elliptic, > 0.2 mm long, usually deep purple with white edges; ovary glabrous. Capsules ovoid, 1.2-1.4 mm long, glabrous; seeds oblong-ovoid, > 1 mm long, faces flat or slightly convex, smooth, brown or grayish.

GENERAL DISTRIBUTION: Florida, Mexico, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Barbuda!, Antigua!, Guadeloupe!, Marie Galante!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

Chamaesyce thymifolia (L.) Millsp., Publ. Field Colombian Mus., Bot. Ser. **2:** 412. 1916.

Basionym: *Euphorbia thymifolia* L., Sp. Pl. **1:** 454. 1753.
Type: Unresolved.

Annual, rootstock thick, stems prostrate, to 20 cm long, not rooting at nodes, villous to glabrate. Leaves with petioles 0.5-1 mm long; blades oblong-elliptic, 4-10 × 2-5 mm, base oblique, apex rounded to acute, margin coarsely serrate, glabrous above, sparsely tomentose to glabrate below; stipules distinct, linear, 0.7-1 mm long, toothed. Cyathia in pairs or clustered with short peduncles; involucre obconical, 0.4-0.6 mm long, pubescent; ovary strigose. Capsules long-ovoid, 0.8-1 mm long, strigose; seeds conical-ovoid, $>$ 0.9 mm long, faces concave, obscurely transversely ridged, tan.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Guadeloupe!, La Désirade!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

CNIDOSCOLUS Pohl

Cnidoscolus Pohl, Pl. Bras. Icon. Descr. **1:** 56. 1827.

Monoecious shrubs or small trees, armed with stinging hairs, milky latex in stems and leaves. Leaves alternate, petiolate; blades palmately lobed, pinnately veined; stipules persistent. Inflorescences dichasial, terminal; staminate flowers distal, calyx tubular below, imbricate, disc annular, stamens 8 to 10, the outer free or all connate, pistillode lacking; pistillate flowers basal, calyx petaloid, deciduous, disc annular, staminodes present, ovary of 3 carpels, each locule with 1 ovule, styles free, bifid or laciniate. Fruits capsular, dehiscent; seeds caruncylate.

LECTOTYPE: *Cnidoscolus hamosus* Pohl; vide J. K. Small *in* N. L. Britton & A. Brown, Ill. Fl. N. U.S. ed. 2, **2:** 462. 1913.

A neotropical genus of 50 species, mostly of Mexico and Brazil. For additional information see R. McVaugh, Bull. Torrey Bot. Club **71:** 457-474. 1944.

KEY TO THE SPECIES

Small shrub or large herb with abundant stinging hairs; leaves 3- to 5-lobed; pistillate flowers 3 to 6 per inflorescence . . . . *C. urens*
Small tree, nearly unarmed; leaves subsucculent, mostly 7-lobed, glossy; pistillate flowers 20 to 30 per inflorescence . . . . *C. aconitifolius*

Cnidoscolus aconitifolius (Miller) I. M. Johnston, Contr. Gray Herb. **68:** 86. 1923.

Basionym: *Jatropha aconitifolia* Miller, Gard. Dict. ed. 8. 1768.
Type: Hort. Cliff. 445. (BM).
Syn.: *Jatropha napaeifolia* Desr. ex Adr. Juss., Euphorb. Gen. 112, *t. 11, fig. 34B.* 1824. (Type: ibid. *fig. 34B*).
Cnidoscolus napaeifolius (Adr. Juss.) Pohl, Pl. Bras. Icon. Descr. **1:** 63. 1827.

Small tree or densely branched shrub to 6 m tall, glabrous or with few stinging hairs on petiole and veins. Leaves with petioles 15-25 cm long; blades > 15 × 15-25 cm with 5 main lobes and 2 small lateral ones, each oblong to obovate, base with reniform gland, apex acuminate, margin toothed, subsucculent, glossy; stipules inconspicuous. Inflorescences with peduncles > 25 cm long; staminate flowers 10-14 mm long, greenish white, calyx fused at base, lobes 4-6 mm long, stamens numerous, the outer shorter and free; pistillate flowers 20 to 30 per inflorescence with calyx segments linear-oblong, 5-7 mm long, white, deciduous, ovary pubescent. Capsules 8-12 mm long, unarmed; seeds elliptic 6-8.5 × 4-5.5 mm, brown and mottled, caruncles 1.5-2 × 2-2.8 mm.

GENERAL DISTRIBUTION: Mexico, Central America, cultivated elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe, Martinique.

COMMON NAMES: Manioc bâtard, manioc brûlant, ricin bâtard, ricin brûlant.

NOTE: Said to have been cultivated for its edible leaves but now found established spontaneously.

Cnidoscolus urens (L.) Arthur, Torreya **21:** 11. 1921. FIGURE 8.

Basionym: *Jatropha urens* L., Sp. Pl. **2:** 1007. 1753.
Lectotype: LINN 1141.13.

Small shrub or large herb with soft woody stems, to 3 m tall, all parts densely armed with stinging hairs. Leaves with petioles 3-12 cm long; blades 3- to 5-lobed, ovate to suborbiculate in outline, 7-15 × 8-18 cm, base cordate, apex abruptly acuminate, with dense cluster of pointed glands, margin erose to denticulate, palmately 5-veined; stipules 3-parted, central portion > 5 mm long. Inflorescences terminal with peduncles 3.5-12 cm long; staminate flowers clustered at apex of dichasial branches, calyx 11 mm long, basal tube dilated, lobes suborbiculate to ovate, stamens 10, biseriate; pistillate flowers 3 to 6 per inflorescence, sepals distinct, oblong, > 3 mm long, white, caducous, ovary armed with stinging hairs. Capsules 10-12 mm in diameter, armed; seeds oblong-obovate, 6.5-9 mm long, dark brown or gray, marbled, caruncle deltoid > 1.5 × 2-3 mm.

GENERAL DISTRIBUTION: Mexico, Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAMES: Pica-pica, devil nettle.

CODIAEUM Adr. Juss.

Codiaeum Adr. Juss., Euphorb. Gen. 33. 1824, nom. cons.

Monoecious shrubs. Leaves alternate, petiolate; blades simple, variable in size, shape, color, and margin, glabrous; stipulate. Inflorescences axillary, racemose; staminate flowers clustered at nodes, calyx of 5 imbricate sepals, petals minute, 5 or 6, disc of glands, stamens 15 to 35, free, pistillode wanting; pistillate flowers solitary at nodes, calyx small, petals wanting, disc present, ovary 3-locular, glabrous. Fruits dehiscent into 2-valved cocci; seeds carunculate.

TYPE: *Croton variegatum* L. = *Codiaeum variegatum* (L.) Adr. Juss.

A genus of about 15 species from Polynesia, Malesia, and northern Australia.

Codiaeum variegatum (L.) Adr. Juss., Euphorb. Gen. 33, *t. 9, fig. 30.* 1824. FIGURE 13.

Basionym: *Croton variegatum* L., Sp. Pl. **2:** 1199. 1753.
Type: Rumph., Herb. Amboin. **4:** 65, *t. 25.* 1743.

Shrubs to 4 m tall. Leaves with petioles > 2.5 cm long; blades extremely variable even on one plant, oblong, elliptic, ovate, or linear in outline, 9-20 × 1.5-7 cm, or blade interrupted with areas of unflanged midrib, or lamina spiral on midrib or cucullate at apex, base rounded, apex rounded, acute, or long-mucronate, margin entire, sinuate, undulate, or variously lobed, green, red, or variously blotched with yellow or white; stipules wanting. Inflorescences to 35 cm long; staminate flowers on pedicels > 2 cm long, calyx and petals white, stamens about 25; pistillate flowers on pedicels > 3 mm long, ovary glabrous, styles undivided, > 7 mm long. Capsules subglobose, 5-6 mm long; seeds oblongoid, 5-6 mm long, plump, mottled with dark brown.

GENERAL DISTRIBUTION: Native of Polynesia but widely cultivated in many forms, all propagated asexually.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Dominica!, St. Lucia!.

NOTE: Probably cultivated or persisting on all the islands but poorly represented in herbaria.

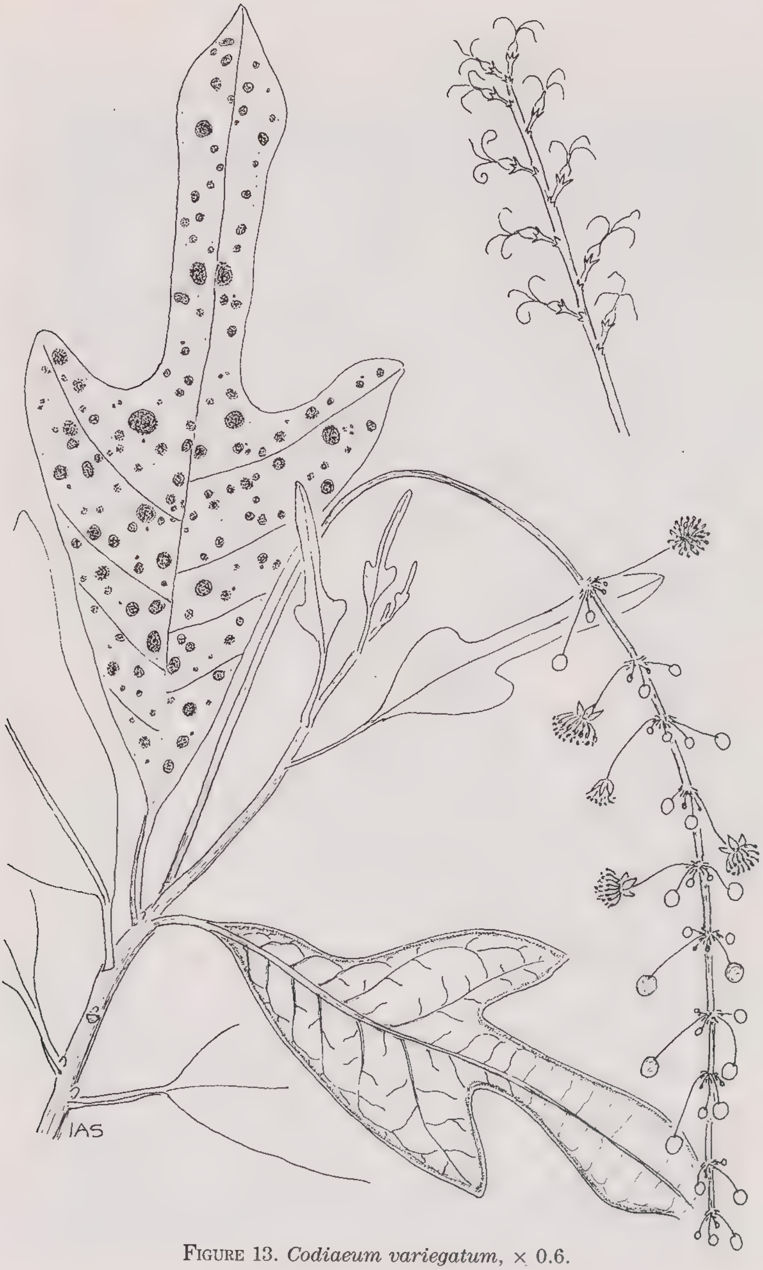


FIGURE 13. *Codiaeum variegatum*, × 0.6.

CROTON L.

Croton L., Sp. Pl. **2:** 1004. 1753.

Herbs, shrubs, or trees; stems, leaves, inflorescences, and flowers pubescent with lepidote or stellate hair clusters, the central hair often larger and erect or radiating hairs appressed and reduced, the pubescence appearing pilose. Leaves alternate, petiolate; blades with translucent glands, strong-scented, with 2 or more stalked or sessile glands adaxial or abaxial at apex of petiole or at base of blade, venation often strongly palmate at base, or all pinnate; stipules minute, ovate or setaceous, sometimes slightly foliaceous, pubescent or glandular. Inflorescences axillary or terminal, spicate or racemose with pistillate flowers 1 to several and basal, staminate flowers distal, several to many or inflorescences staminate and plants appearing dioecious. Staminate flowers with calyx 4- to 6-parted; petals present but often small or rudimentary; stamens 10 or more; pistillode wanting. Pistillate flowers 5-parted; petals usually wanting; ovary 3-celled, ovules 1 in each locule, styles bifid to twice or many times divided, glabrous or pubescent. Fruits capsular, dehiscent; seeds elongate with 2 flat faces and 1 curved surface, smooth and shiny or tuberculate or verrucose, caruncle present, orbicular to oblong, sometimes winged.

LECTOTYPE: *Croton tiglium* L.; vide J. K. Small *in* N. L. Britton & A. Brown, Ill. Fl. N. U.S. ed. 2, **2:** 454. 1913.

A genus of 600 species or more, worldwide but predominately in the tropics.

EXCLUDED SPECIES

Croton discolor Willd., cited by Fournet (1978) from Martinique, cannot be verified.

Croton glandulosus L., reported by Urban (Symb. Antill. **4:** 343. 1905) from Antigua, Guadeloupe, and Martinique. No specimens were cited and none were seen by Fournet who referred this taxon to *C. trinitatis* Millsp.

Croton gossypiifolius M. Vahl, reported by Fournet (1978) as cultivated.

Croton humilis L. var. *humilis* occurs in the Grenadines, according to Adams (1972), but the record cannot be traced.

Croton iserti Geiseler is recognized by Fournet (1978) but is here considered a synonym of *C. hircinus* Vent.

Croton jardinii Muell. Arg., as recognized by Fournet, is regarded as a synonym of *C. guildingii* Griseb.

Croton martinicensis Urban (Symb. Antill. **3:** 295. 1902) was described on the basis of *Duss 492* (B, destroyed), and no isotypes have been located. The species was stated to be dioecious and although fully described cannot be associated convincingly with other taxa known from the area. Urban made the comparison of his new species with *C. discolor* Willd. A staminate condition such as this is seen frequently in several species and is not clearly diagnostic as Fournet suggested.

Croton penninervis Sheele (Linnaea **17:** 343. 1843), based on a Sieber collection from Martinique, has not been seen and cannot be identified at present.

Croton trinitatis Millsp. is cited by Fournet (1978), who stated that Urban reported the species from Guadeloupe and Martinique. As given, the Urban reference is erroneous, and the material of that species has not been seen.

KEY TO THE SPECIES

1. Leaves silvery beneath, lepidote or lepidote-stellate pubescent.
  2. Inflorescences terminal; leaves translucent-dotted; pistil lepidote; styles pubescent at base; fruits ca. 4 mm long .... *C. bixoides*
  2. Inflorescences axillary or terminal on short axillary shoots; leaves not translucent-dotted; pistil stellate-pubescent; styles glabrous; fruits 1 cm long .... *C. niveus*
1. Leaves stellate pubescent or with simple hairs, not silvery beneath.
  3. Plants herbaceous or semi-prostrate, or low undershrubs less than 60 cm tall.
    4. Leaves 3- to 5-lobed .... *C. lobatus*
    4. Leaves simple, entire to serrate-dentate.
      5. Low woody herbs; leaves < 2 cm long.
        6. Leaves entire, eglandular .... *C. microcarpus*
        6. Leaves crenate-dentate, with slender-stalked glands .... *C. betulinus*
      5. Erect herbs; leaves 1-7 cm long.
        7. Leaves entire, eglandular, rounded or obtuse at apex .... *C. ovalifolius*
        7. Leaves serrate with stalked basal glands, acute or narrowed at apex .... *C. hirtus*
  3. Shrubs exceeding 1 m to small trees reaching 10 m.
    8. Leaves eglandular; calyx lobes broad and overlapping, as long as or longer than the capsules .... *C. astroites*
    8. Leaves with stalked or sessile glands; calyx lobes acute or lanceolate.
      9. Stipules and base of leaf or lower teeth with sessile glands; pistillate calyx conspicuously glandular on the margin .... *C. hircinus*
      9. Stipules eglandular; leaves with stalked glands.
        10. Leaves entire, apex usually long-acuminate; glands stalked, capitate or peltiform; styles once bifid, glabrous .... *C. flavens*
        10. Leaves toothed, apex usually acute.
          11. Slender tree > 5 m tall; leaves usually 9 cm long or more; laminal glands short and stoutly stalked or sessile, these clearly adaxial; stipules ovate, > 0.5 mm long .... *C. corylifolius*
          11. Shrub 2-3 m tall; leaves commonly 3-4 cm long; laminal glands abaxial, slender-stalked; stipules linear, setaceous, 5 mm long .... *C. guildingii*

Croton astroites Dryander *in* Aiton, Hort. Kew **3:** 375. 1789.

Type: Not determined.

Syn.: *Croton phlomoides* Pers., Syn. Pl. **2:** 375. 1806. (Type: St. Thomas, collector unknown).

Croton venosus Sprengel, Neue Entd. **3:** 24. 1822. (Type: St. Thomas, St. Croix, collector not indicated.)

Croton guadeloupensis Ham., Prodr. Pl. Ind. Occid. 55. 1825. (Type: Herb. Desr. (P).)

Shrub or small tree to 6 m tall, all parts densely stellate-pubescent. Leaves with petioles 1-4 cm long; blades ovate-oblong to ovate-lanceolate, 3-8 × 2-5 cm, base rounded to subcordate, apex acute or acuminate, eglandular; stipules minute, subulate. Inflorescences 2-6 cm long; staminate flowers with calyx lobes ovate, 2-3 × 1-1.5 mm, petals oblong, 2-3 × 1-2 mm, filaments pubescent; pistillate flowers with sepals oblong, 7 × 3 mm, acute, styles branched from base several times, pubescent below. Capsules 5 mm long, subtended by calyx 5 mm long; seeds 4.5 × 3 mm, striate-areolate, caruncle globular with small wings.

GENERAL DISTRIBUTION: Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Les Saintes!, Dominica!, Martinique!.

COMMON NAMES: Balsam, black balsam.

Croton betulinus M. Vahl, Symb. Bot. **2:** 98. 1791.

Type: St. Thomas, collector unknown (probably IDC 2201. **15:** II. 7, photo!).

Shrub to 3 m tall, all parts stellate-pubescent. Leaves with petioles 2-6 mm long; blades ovate or ovate-lanceolate, 8-20 × 4-6 mm, base rounded to subcordate, apex obtuse or acute, margin coarsely crenate-dentate, stalked peltate glands 1 or 2 on abaxial side at base of blade; stipules minute, setaceous, caducous. Racemes terminal; staminate flowers with calyx 1 mm long, stamens 10; pistillate flowers with sepals obovate, 2.5 mm long, styles divided at base and near apex. Capsules 3 mm in diameter; seeds 2.2 × 1.5 mm.

GENERAL DISTRIBUTION: Cuba, Hispaniola, Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, Antigua, Martinique.

COMMON NAME: Nanny bush.

Croton bixoides Geiseler, Croton. Monogr. 53. 1807. FIGURE 11.

Type: Martinique, *Surian 74* (P-JU #16334; IDC 6206. **31:** III. 3, photo).

Syn.: *Croton foetens* A. Anderson, Trans. Soc. London Encour. Arts **25:** 202. 1807, nom. nud.
Croton helicoideus Muell. Arg., Linnaea **34:** 97. 1865. (Type: No specimens cited.)
Croton choristolepis Urban, Repert. Spec. Nov. Regni Veg. **15:** 407. 1919. (Type: Trinidad, *Bot. Herb. 2440.*)

Shrub > 4 m tall, all parts with lepidote, brown or silvery pubescence with numerous short radiating arms. Leaves with petioles 4-20 mm long; blades ovate to lanceolate, 2.5-13 × 2.5-5 cm, base obtusely truncate to shallowly cordate, apex acute to long-acuminate, margin entire to shallowly crenate, green above, silvery below, eglandular but translucent dots present; stipules lanceolate to filiform, 5-7 mm long, base semicordate. Inflorescences terminal, 5-8 cm long; staminate flowers with sepals triangular-ovate, petals oblong, stamens 14, filaments pubescent at base; pistillate flowers with sepals triangular, petals wanting, styles 6- to 8-branched, pubescent at base. Capsules 4 mm long; seeds 2.5-3 × 2 mm, surface roughened, caruncle lateral.

General distribution: Lesser Antilles, Trinidad.

Distribution in Lesser Antilles: Dominica!, Martinique!, St. Lucia!, the Grenadines!.

Common names: Grand balsam blanc, ti baum blanc, bois petit baume, baume blanc.

Notes: The binomial is usually credited to Vahl, but Geiseler only ended the description with Vahl's name and indicated there was a specimen in Herb. Jussieu without citing a collector. Mueller Aargau (in DC., Prodr. **15**(2): 552. 1866) credited "Vahl in Geisel.," and cited specimens from Martinique as well as *Sieber 269* from Trinidad. Subsequently Urban (Repert. Spec. Nov. Regni Veg. **15:** 407. 1919) described the Sieber specimen as *Croton choristolepis.* Urban also suggested that the type of *C. bixoides* was *Surian 74.* This specimen is sterile, and Geiseler's original description does not mention characters of the inflorescences, flowers, or fruits.

Croton helicoideus Muell. Arg. was considered distinct on the nature of the sepals that were semicordate at the base with one lobe extended in a subulate or linear appendage and the stipules helicoid. All transitions from linear-subulate to green and foliaceous, cordate stipules can be found on one branch.

Some inflorescences in the specimens examined are completely staminate while others are predominately pistillate with but a few staminate flowers.

Croton corylifolius Lam., Encycl. **2:** 205. 1786.

Type: Antilles, *Surian s.n.* (P, n.v.).
Syn.: *Croton montanus* Geiseler, Croton. Monogr. 23. 1807. (Type: Guadeloupe, *Isert s.n.* (n.v.).)
Croton punctatus A. Anderson, Trans. Soc. London Encour. Arts **25:** 202. 1807, nom. nud.

Shrub or slender tree 10 m tall, parts sparsely stellate to densely pubescent. Leaves with petioles 3.5-9 cm long; blades ovate to oblong, 5.5-20 × 4-14 cm, base truncate to subcordate, apex acute to long-acuminate, margin coarsely crenate or serrate, basal glands subsessile to stoutly stalked, adaxial, cuplike; stipules ovate-triangular, > 0.5 mm long, eglandular. Inflorescences > 10 cm long; staminate flowers with sepals ovate, 1-1.5 mm long, petals oblong, > 2 mm long, stamens 16 to 18; pistillate flowers with sepals ovate, 1-1.5 mm long, each style divided, stellate at base. Capsules 5 mm long; seeds 4 × 2.5 mm.

General distribution: Cuba, Jamaica, Hispaniola.

Distribution in Lesser Antilles: Montserrat!, Guadeloupe!, Dominica!, St. Lucia!, St. Vincent!.

Note: Vigorous upright shoots of this plant may have clusters of axillary branches with much smaller leaves. The slightly lepidote, stellate hair clusters have a conspicuous erect central hair when young that is apparently caducous.

Croton flavens L., Syst. Nat. ed. 10, **2:** 1276. 1759; Amoen. Acad. **5:** 410. 1760.

Lectotype: LINN 1140.21.
Syn.: *Croton balsamiferum* Jacq., Enum. Syst. Pl. 32. 1760. (Lectotype: Martinique, *Jacquin s.n.* (BM).)
Croton richardi Willd., Sp. Pl. **4:** 553. 1805. (Type: Martinique, *Richard s.n.* (n.v.).)
Croton flocculosus Geiseler, Croton. Monogr. 14. 1807. (Type: Santo Domingo, ex Herb. Rich. (n.v.).)
Croton flavens L. var. *balsamifera* (Jacq.) Muell. Arg. *in* DC., Prodr. **15**(2): 613. 1866.
Croton muralis E. H. Krause, Beih. Bot. Centralbl. **32:** 341. 1914. (Type: St. Vincent, *Krause 14502* (n.v.).)

Shrub to 3 m tall, all parts densely stellate-pubescent. Leaves with petioles 4-20 mm long; blades ovate to ovate-lanceolate, 2-10 × 1-4 cm, base cordate, apex acuminate to slightly mucronate, margin entire, basal glands abaxial, short-stalked, capitate or peltiform, occasionally on midrib; stipules minute, ovate, caducous. Inflorescences 5-10 cm long; staminate flowers with calyx lobes broadly ovate, 1.5 mm long, petals oblong, 1.75 mm long, stamens 16, glabrous or pubescent; pistillate flowers with calyx lobes ovate, 2 mm long, styles 3, divided to base and often at apex, glabrous. Capsules subglobose, 5 mm long; seeds 3-3.5 × 1.5 mm, smooth to foveolate.

GENERAL DISTRIBUTION: Greater Antilles, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Redonda!, Montserrat!, Guadeloupe!, Marie Galante!, Les Saintes!, Dominica, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Rock sage, sage, balsam, ti baum, copaiba.

NOTE: This is the most common species of *Croton* in drier areas of the Lesser Antilles. Extensive populations are found on different islands and these are often quite variable in leaf shape, color of leaves, and density of pubescence. In the northern islands of St. Kitts, Barbuda, and Montserrat, plants with only staminate inflorescences are common.

Croton guildingii Griseb., Fl. Brit. W. Indian Is. 38. 1859.

Type: St. Vincent, *Guilding s.n.* (holotype, K).
Syn.: *Croton wullschlaegelianus* Muell. Arg., Flora **55:** 10. 1859. (Type: Grenada, *Wullschlaegel 1004* (M).)
Croton jardini Muell. Arg., Linnaea **34:** 119. 1865. (Type: Martinique, *Jardin 323* (n.v.).)
Croton subglaber Urban, Symb. Antill. **3:** 301. 1902. (Type: Martinique, *Duss s.n.* (holotype, B, destroyed).)
Croton dussii Urban, Symb. Antill. **6:** 15. 1909, nom. nov. for *C. subglaber* Urban, not (Kuntze) Schum. (1899?).

Shrub to 3 m tall, all parts sparsely to densely stellate-pubescent, the central hair erect, conspicuous. Leaves with petioles 5-10 mm long; blades ovate, 3-4 × 1.2-2.2 cm, base obtuse or obtusely cuneate, apex acute, margin denticulate, punctate-dotted, glands 2 to 4, sessile at base of blade, abaxial, scutelliform; stipules linear, setaceous, 5 mm long. Inflorescences terminal, 5-7 cm long; staminate flowers with sepals ovate, 1.7 mm long, petals ovate, 1.7 mm long, stamens ca. 11, pubescent at base; pistillate flowers with sepals oblong or oblanceolate, 4 mm long, styles 3, each divided to base. Capsules globose, 4 mm long; seeds 3 × 2.2 mm, purple.

GENERAL DISTRIBUTION: Lesser Antilles, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAMES: Bois petit baume, ti baume, baume bâtard, baume-pays, ti bomm wonj.

Croton hircinus Vent., Jard. Malmaison **1:** 50, *t. 50.* 1804.

Type: ibid. *t. 50.*
Syn.: *Croton populifolius* Lam., Encycl. **2:** 205. 1786, not *C. populifolius* Miller (1768). (Type: "Plumier mss. 4, *t. 123.*")
Croton isertii Geiseler, Croton. Monogr. 24. 1807. (Type: Martinique, *Isert s.n.* (n.v.).)

Shrub or small tree to 3 m tall, all parts sparsely to densely stellate-pubescent. Leaves with petioles 2-6 cm long; blades ovate to elliptic, 5-11 × 2-7 cm, base rounded to cordate, distinctly 5- to 7-nerved, apex cuspidate-acuminate, margin coarsely dentate, lower teeth glandular-tipped, adaxial glands scutelliform, blades glandular-punctate; stipules linear to subulate, 2-7 mm long, deeply laciniate with glandular lobes. Inflorescences terminal, 5-17 cm long; staminate flowers with calyx lobes triangular, 2-2.8 mm long, dark glandular-punctate, petals elliptic to obovate, 2.5-3.5 mm long, stamens 10 to 12, hirsute below; pistillate flowers with sepals lanceolate to linear, 3.5-5 mm long, glandular-toothed below, petals subulate, styles 3, each twice bifid, glandular. Capsules subglobose, 6 mm long; seeds 3.8-4.2 × 2.9-3 mm, brownish, smooth.

GENERAL DISTRIBUTION: Panama.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAME: Ti baume.

Croton hirtus L'Hér., Stirp. Nov. 17, *t. 9.* 1785.

Type: Guiana, *Richard s.n.* (n.v.).
Syn.: *Croton glandulosus* L. var. *hirtus* (L'Hér.) Muell. Arg. *in* DC., Prodr. **15**(2): 684. 1866.

Herb to 60 cm tall, all parts with stellate pubescence, appearing pilose through the long, erect, central hair. Leaves with petioles 7-13 mm long; blades ovate or orbiculate, sometimes slightly lobed, 5-7 × 3-5 cm, apex acute, margin usually doubly crenate-serrate, four abaxial glands, long, slender, scutelliform; stipules linear, setaceous, 5 mm long. Inflorescences 1.5-2.5 cm long; staminate flowers with calyx lobes elliptic to oblong-elliptic, 1 mm long, petals oblong-linear, 3 mm long, stamens ca. 10, glabrous; pistillate flowers with unequal calyx lobes obovate-oblong, 3-4 mm long, styles 3, bifid to base. Capsules globular, 4 mm long; seeds 3 × 2 mm, dark gray with black dots.

GENERAL DISTRIBUTION: Jamaica, Mexico, Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Herbe aux ortolans, ortie-savane.

Croton lobatus L., Sp. Pl. **2:** 1005. 1753.

Type: Mexico, not designated.

Annual herb to 60 cm tall, most parts seemingly pilose through long central hair of stellate cluster. Leaves with petioles 1.5-4 cm long; blades 3- to 5-lobed, to 8 × 12 cm, lobes elliptic or narrowly so, 1.5-4.5 × 0.5-3.5 cm, base truncate, apices of lobes acuminate, margin serrate, teeth glandular-tipped, without apical glands or these undistinguishable from lower marginal teeth; stipules lanceolate, 3-4 mm long, glandular-margined. Inflorescences 6-12 cm long; staminate flowers with sepals ovate, 1 mm long, petals oblong, 1-1.5 mm long, stamens ca. 10; pistillate flowers with calyx lobes lanceolate, to 5 mm long, acuminate and glandular-margined, styles 3, 3- to 8-fid at apex. Capsules globose, 5 mm long; seeds 5 × 3 mm, ochre-colored, noticeably verrucose.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, widespread in other tropical areas as a weed.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Antigua!, Saba!, St. Eustatius!, Redonda!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Mouzambé blanc, gombo française.

Croton microcarpus Ham., Prodr. Pl. Ind. Occid. 55. 1825.

Type: Dominican Republic, *Hamilton s.n.* (holotype, P).
Syn.: *Croton nummularifolius* A. Rich. *in* Sagra, Hist. Fis. Cuba, Bot. **11:** 211. 1850. (Type: Cuba, *Sagra s.n.* (holotype, P, n.v.).)

Prostrate woody herb with stems to 25 cm long. Leaves with petioles 2-3 mm long; blades elliptic to orbiculate, 2-8 × 3-6 mm, base rounded, apex acute, obtuse, rounded, or emarginate, margin entire, eglandular, stellate-pubescent becoming glabrous; stipules minute, ovate-lanceolate, > 0.6 mm long. Inflorescences terminal, to 5 mm long; staminate flowers 2 or 3, sepals ovate, 1 mm long, petals ovate, 1.2-1.4 mm long, stamens 8; pistillate flower usually solitary, calyx lobes oblong, 2 mm long, ovary densely stellate, styles twice divided, stellate at base. Capsules globose, 2.4 mm in diameter; seeds 2 × 1.5 mm, tan, slightly striate.

General distribution: Cuba, Hispaniola, Puerto Rico.

Distribution in Lesser Antilles: Anguilla!, St. Barts!.

Common name: Sweet marjoram.

Croton niveus Jacq., Enum. Syst. Pl. 32. 1760; Select. Stirp. Amer. Hist. 225, *t. 162, fig. 2.* 1763.

Type: Cartagena, loc. cit. *t. 162, fig. 2.*
Syn.: *Croton populifolius* Miller, Gard. Dict. ed. 8. 1768. (Type: without location, *Miller s.n.* (BM).)
Croton pseudochina Schldl. & Cham., Linnaea **5:** 84. 1830. (Type: Mexico.)

Shrub to 4 m tall, all parts covered with silvery and brown peltate scales. Leaves with petioles 6-15 mm long; blades ovate, 3.5-8 × 2.5-5.5 cm, base cordate, apex attenuate, margin entire, lower surface silvery, eglandular; stipules 1-1.5 mm long, caducous. Inflorescences axillary or terminal on short axillary shoots, 3-5 cm long, often only staminate; staminate flowers with calyx lobes ovate or triangular, 2 mm long, petals oblong, 2.5-3 mm long, ciliate, stamens 10 to 16, pubescent; pistillate flowers with calyx lobes ovate-triangular, ciliate, petals oblong, ciliate, styles 4-fid, glabrous. Capsules obovoid, 10 × 6 mm, stellate-pubescent; seeds oblong, 6 × 4 mm, dark brown, smooth and glossy.

General distribution: Trinidad, northern South America.

Distribution in Lesser Antilles: St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

Common name: White stock.

Croton ovalifolius M. Vahl *in* West, Bidr. Beskr. Ste. Croix 307. 1793.

Type: St. Croix.
Syn.: *Croton diffusus* Geiseler, Croton. Monogr. 41. 1807, nom. superfl.

Low shrub to 50 cm tall, most parts seemingly pilose through long central hair of stellate clusters. Leaves with petioles 4-10 mm long; blades oval, oblong, or elliptic, 1-2.5 × 0.4-1.1 cm, base narrowed, cuneate, or rounded, apex rounded or obtuse, margin entire, eglandular; stipules linear, 1-1.5 mm long, gland-tipped. Inflorescences to 3 cm long; staminate flowers with calyx lobes ovate, 2 mm long, petals oblong, 1.5-2 mm long, stamens 11, filaments pubescent; pistillate flowers with calyx lobes 4-6 mm long, lacerate or fringed with glandular tips, styles twice divided, glabrous. Capsules globose, 3 mm in diameter; seeds oblongoid, 3 × 2 mm, longitudinally ridged or verrucose, tan.

General distribution: Greater Antilles, northern South America.

Distribution in Lesser Antilles: Guadeloupe!, Les Saintes!.

DALECHAMPIA L.

Dalechampia L., Sp. Pl. **2:** 1054. 1753.

Monoecious, subherbaceous to woody, often rampant vines. Leaves alternate, petiolate; blades usually 3- to 5-lobed; stipulate. Inflorescences axillary, pedunculate, involucre of 2 large, foliaceous bracts, lower and outer flowers pistillate, inner and upper staminate; staminate flowers with bractlets modified into conspicuous, resin-producing glands, calyx 4- to 6-parted, valvate, petals wanting, stamens numerous, pistillode wanting; pistillate flowers with calyx 5- to 12-parted, laciniate, ovary 3-celled, ovules 1 per locule, styles united in a column. Capsules 3- to 4-lobed, dehiscent into 2-valved cocci; seeds ecarunculate.

Type: *Dalechampia scandens* L.

A genus of 100 species throughout the tropics. For additional information see G. Webster & B. D. Webster, Amer. J. Bot. **59:** 573-586. 1972.

Dalechampia scandens L., Sp. Pl. **2:** 1054. 1753. Figure 14.

Type: Plum., Descr. Pl. Amér. 87, *t. 101.* 1693.

Slender vine, stems to 5 m long, usually twisted, hirsute. Leaves with petioles 6-7 cm long, hirsute; blades deeply 3-lobed, 5-7 × 6-12 cm, median lobe oblong to obovate, lateral lobes obliquely ovate, base deeply cordate, apices acute or acuminate, margin denticulate; stipules ovate to linear-lanceolate, 0.7-1 cm long. Inflorescences with peduncles 3-4 cm long; bracts > 2 × 2.5 cm, 3 or more cleft, lobes acute, white and green lined or all green; segments of pistillate calyx pectinate, setose, > 1 cm long in fruit. Capsules rounded, 4 mm in diameter, puberulent; seeds globose, 3 mm in diameter, gray or brown.

General distribution: Mexico, Central America, Greater Antilles, South America.

Distribution in Lesser Antilles: St. Martin!, Antigua!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

Common names: Ortie rouge, liane poilue, liane-ortie.

Note: Bractlike appendages within the inflorescences are usually densely covered with white stinging hairs. Similar stiff hairs are occasional on the stems, leaves, and bracts of the inflorescence.

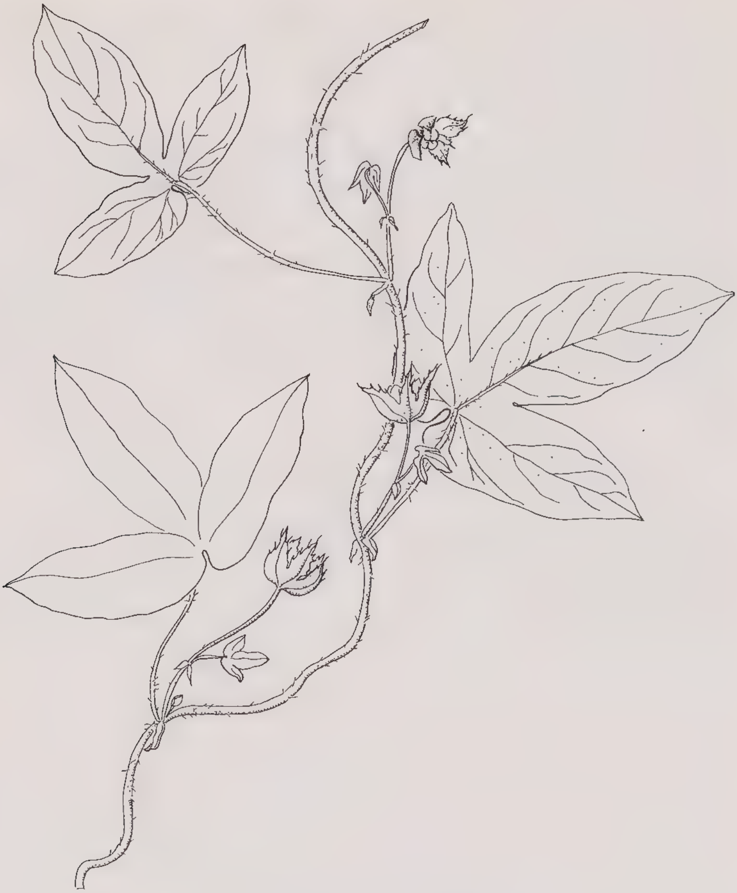


FIGURE 14. *Dalechampia scandens*, × 0.5.

DRYPETES M. Vahl

Drypetes M. Vahl, Eclog. Amer. **3:** 49. 1807.

Dioecious trees or shrubs. Leaves alternate, petiolate; blades simple, entire, usually coriaceous, glabrous. Flowers axillary, fasciculate, short-pedicellate; calyx 4- to 6-parted, lobes imbricate; petals wanting; staminate flowers with 5 to 11 stamens, filaments exserted or barely so, disk and pistillode present, tomentose; pistillate flowers with basal disk, puberulent, ovary 1-celled (rarely 2-celled), puberulent, ovules 2 per locule, only one developing, stigma sessile, pulviniform or lobed. Fruits drupaceous, glabrous or puberulent; seed 1, hippocrepiform in section.

TYPE: *Drypetes glauca* M. Vahl.

A tropical genus of about 200 species with but ca. 20 in the neotropics of Florida, Mexico, Central America, the Antilles, and northern South America. The plants are dioecious, and staminate flowers have been collected rarely in the Lesser Antilles.

NOTE: *Drypetes alba* Poit., based on material from Tortue Island, has been reported to occur in Antigua and Guadeloupe by recent authors without the citation of specimens. The small fruits of this species are characteristic and no such material has been seen. *D. alba* is considered to be restricted to the Greater Antilles.

KEY TO THE SPECIES

1. Leaves rigidly coriaceous, broadly oblong or oval; drupes 2.5-3 cm long .... *D. dussii*
1. Leaves subcoriaceous, lanceolate to oblong- or elliptic-lanceolate, apices acute or acuminate; drupes 1-1.5 cm long.
  2. Leaves ovate-lanceolate, apex long-acuminate, margin bluntly serrate to undulate .... *D. serrata*
  2. Leaves oblong to oblong- or elliptic-lanceolate, apex acute, margin entire .... *D. glauca*

Drypetes dussii Krug & Urban, Bot. Jahrb. Syst. **15:** 355. 1892.

Type: Syntypes cited, no lectotype chosen.

Tree to 9 m tall. Leaves with stout petioles, 3-6 mm long; blades broadly oblong to oval, 5-9 × 3-7 cm, base rounded, apex rounded, margin entire, reticulate-veined on both surfaces when dry, rigidly coriaceous, shiny. Staminate flowers in clusters of 3 to 5, pedicels 2-6 mm long, sepals round, stamens 8 to 11, pistillode pubescent; pistillate flowers 1 or 2, pedicels 3-4 mm long, sepals orbiculate, disk and ovary tomentose. Drupes ovoid, 2.5-3 × 1.8-2.4 cm, compressed, narrowed at base and apex, puberulent.

GENERAL DISTRIBUTION: Endemic to Martinique.

COMMON NAME: Bois-moussara.

Drypetes glauca M. Vahl, Eclog. Amer. **3:** 49. 1807. FIGURE 17.

Type: Montserrat, *Ryan s.n.* (C, 3 sheets).

Trees to 20 m tall, twigs puberulent. Leaves with petioles 1-1.6 cm long; blades elliptic-lanceolate to oblong-lanceolate, 6-13 × 3-6.5 cm, base rounded to subacute, apex acute or abruptly so, margin entire, mostly subcoriaceous, glabrous. Staminate flowers in clusters of 5 to 7, pedicels > 5 mm long, sepals round, stamens 6, disk pubescent, pistillode wanting; pistillate flowers 1 or

2, pedicels 3-4 mm long, sepals round, disk pubescent, ovary tomentose, stigma sessile. Fruits slightly compressed, 1.5 × 1 cm, short-pointed.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!.

COMMON NAMES: Greenheart, café grand bois.

NOTE: Urban cited *Duss 33* as the type and only specimen of *D. glauca* M. Vahl var. *macrocarpa* Krug & Urban (Bot. Jahrb. Syst. **15:** 356. 1892) with a fruit 22-24 mm long.

Drypetes serrata (Maycock) Krug & Urban, Bot. Jahrb. Syst. **15:** 354. 1892.

Basionym: *?Koelera serrata* Maycock, Fl. Barbad. 385. 1830.
Type: Barbados.
Syn.: *Drypetes glomerata* Griseb., Abh. Königl. Ges. Wiss. Göttingen **7:** 175. 1857; Syst. Veg. Karaiben 27. 1857. (Type: Guadeloupe, *Duchassaing s.n.*)
Drypetes serrulata Pax & K. Hoffm. *in* Engl. Pflanzenr. IV. **147**(Heft 81): 267. 1922, nom. superfl.

Tree 6-8 m tall. Leaves with petioles > 1 cm long; blades ovate-lanceolate, 7-12 × 1.5-3.5 cm, base acute, slightly asymmetric, apex long-acuminate, margin entire to bluntly serrate or undulate, subcoriaceous, glabrous. Staminate flowers in clusters of 20 to 40, pedicels 5-6 mm long, sparsely pubescent, sepals 4 or 5, narrowly ovate, stamens 5, disk pubescent, pistillode minute; pistillate flowers 1 to 6, pedicels 4-5 mm long, sepals 4, ovoid, disk pubescent, ovary tomentose. Drupes 1-1.3 × 1 cm.

GENERAL DISTRIBUTION: Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Martinique!, Barbados!.

COMMON NAME: Silverwood.

NOTES: Pax & Hoffman (loc. cit.) recognized *Drypetes serrata* (Blume) Pax & K. Hoffm., based on *Cyclostemon serratus* Blume (Bijdr. 599. 1826) typified by a collection from Java. This later homonym is conspecific with *D. teysmanni* (Hassk.) Bakh. f. & Steenis. Pax & Hoffman incorrectly renamed *D. serrata* (Maycock) Krug & Urban as *D. serrulata* Pax & K. Hoffm.

Gooding et al. (1965), apparently unaware of Krug & Urban's treatment, suggested Maycock's *Koelera serrata* was a species of *Xylosma* but did not make the transfer, and apparently neither saw Maycock's material nor found it in Barbados. No Maycock specimens are known and it appears a neotype is needed.

Drypetes glomerata (Muell Arg.) Hutch. (*in* Oliver, Fl. Trop. Afr. **6:** 679. 1912) is also a later homonym based on *Cyclostemon glomeratus* Muell. Arg. (Flora **47:** 532. 1864) from Fernando-Po. Brenan (Kew Bull. **1953:** 92. 1952) renamed this taxon *D. fernandopoana* Brenan.

EUPHORBIA L.

Euphorbia L., Sp. Pl. **1:** 450. 1753.

Monoecious herbs, shrubs, or trees, stems sometimes succulent, sometimes spiny, often with swollen nodes, generally with copious milky latex. Leaves alternate, opposite, ternate, or whorled or clustered on spur shoots, petiolate; blades simple, entire, membranous or quite succulent; stipules persistent, reduced to glands or caducous. Inflorescences often subtended by colored bracts or modified leaves, of cymose cyathia, cuplike, with 2 to 5 lobes alternating with 4 or 5 glands, these fringed or with colored appendages. Staminate flowers cymose with subtending bracteoles fused to involucre or reduced or absent, stamen 1, articulated; pistillate flower solitary, perianth of 3 to 6 sepals or these wanting, ovary 3-celled, each locule with 1 ovule, styles free, joined basally or bifid. Fruits capsular, splitting into 3 cocci; seeds usually angled, surface tuberculate or glandular or smooth, caruncle inconspicuous or wanting.

LECTOTYPE: *Euphorbia antiquorum* L.; vide C. F. Millspaugh, Publ. Field Columbian Mus., Bot. Ser. **2:** 306. 1909.

The several floras of the Caribbean islands have treated the genus *Euphorbia* in a variety of ways, from the recognition of five segregate genera by Britton and P. Wilson (1924) to consideration of it as an inclusive genus by Adams (1976). Webster's discussion of the problem (J. Arnold Arbor. **48:** 303-430. 1967) is noteworthy and, as a practical solution, only the genera *Chamaesyce* Gray and *Euphorbia* L. are recognized here.

KEY TO THE SPECIES

1. Leaves small and soon deciduous; shrubs or succulent plants with stems stout, terete or angled. Commonly cultivated or persisting from use as hedge or barrier plants.
    2. Stems armed with paired nodal spines, 3- to 4-angled, green-marbled between angles; leaves suborbiculate, 4-6 mm long .... *E. lactea*
    2. Stems unarmed, terete, green, jointed; leaves linear-lanceolate, 2 × 0.3 cm .... *E. tirucali*
1. Leaves persistent.
    3. Leaves alternate, occasionally opposite above or clustered at ends of growth units.
        4. Shrubs or trees.
            5. Plants armed with nodal spines; bracts paired, rounded. Cultivated.
                6. Stems succulent, erect, mostly sharply 5-angled; spines 2-3 mm long from callus-like bases; flowers clustered, pedicels 0.5 cm long; bracts green .... *E. neriifolia*
                6. Stems woody, sprawling or ascending plants, terete or many-ridged; spines terete to 1.5 cm long; cymes pedunculate, pedicels to 4 cm long; bracts bright red .... *E. millii*
            5. Plants unarmed.
                7. Leaves subtending inflorescences and bracts colored. Cultivated or naturalized.

8. Leaves ovate to lanceolate, repand-dentate; inflorescence branches monopodial with one bract similar to vegetative leaves and the other reduced to a scale (or developed fully in the "double forms"); gland of involucre solitary, large, elliptic; bract 8-15 cm long, unappendaged, bright red or rarely yellowish white, yellow-margined. "Poinsettia." . . . . *E. pulcherrima*

8. Leaves elliptic, entire; bracts of inflorescence narrowly obovate, > 1.5 cm long; glands of involucre 5, circular, with narrowly triangular, acute, white appendages. "Christmas bush." . . . . *E. leucocephala*

7. Leaves subtending inflorescences green, involucre pink; styles and capsules red; leaves often glaucous below, often clustered at apex of a growth unit . . . . *E. dussii*

4. Annual or perennating herbs; leaves alternate or upper ones opposite.

9. Glands of involucre 2, bilabiate with petaloid appendages; leaves mostly entire, without colored blotches; seeds with mammiform warts; involucre, ovary, and capsules pubescent . . . . *E. oerstediana*

9. Glands of involucre solitary, without petaloid appendages; leaves variable in size and shape and margins on one branch; seeds tuberculate.

10. Stems usually pilose; upper leaves and bracts all green or with paler areas but lacking red blotches; involucral gland with circular opening . . . . *E. heterophylla*

10. Stems usually glabrous, rarely slightly pilose; upper leaves and bracts with basal red or bright pink blotches; involucral gland with narrow opening . . . . *E. cyathophora*

3. Leaves 3 to 11 at swollen nodes; petioles long, slender, equaling or exceeding blades; glands of involucre transversely oblong.

11. Leaves in whorls of 6 to 11; blades ovate to orbiculate, mostly less than 2 cm long, apex rounded to emarginate; seeds ovoid-globose, foveolate with large shallow pits . . . . *E. petiolaris*

11. Leaves mostly in whorls of 3 or 4, occasionally more numerous; blades ovate, 4-7 cm long, apex usually acute, often dull red in color; seeds oblong with slightly rugose surface . . . . *E. cotinifolia*

Euphorbia cotinifolia L., Sp. Pl. **1:** 453. 1753.

Type: Curaçao.
Lectotype: Herb. Cliff. 198; *Euphorbia* 11 (BM).

Shrub or small tree to 4 m tall, branches glabrous, articulated with swollen nodes. Leaves mostly in whorls of 3 or 4, occasionally more numerous, persistent, with petioles 2-7 cm long; blades ovate, 4-7 × 3-5 cm, base rounded, apex usually acute, margin entire, dull red. Cymes terminal, bracts opposite, lanceolate, 2 mm long, fringed; cyathia stalked, pubescent, lobes broad, glands transversely oblong, brown with white appendages. Capsules 5 mm in diameter, glabrous; seeds oblong, 3 × 2 mm, slightly rugose, gray.

GENERAL DISTRIBUTION: Mexico, Central America, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Martinique!, St. Vincent!, the Grenadines!.

NOTE: Naturalized in drier areas but also cultivated more frequently than the cited collections indicate.

Euphorbia cyathophora Murray, Commentat. Soc. Regiae Sci. Gott. **7:** 81, *t. 1.* 1786.

Type: ibid. *t. 1.*
Syn.: *Euphorbia cyathophora* Jacq., Icon. Pl. Rar. **3:** *t. 480.* 1788 or 1789, nom. illegit. (named *E. heterophylla* L. in Jacq., Collectanea **1:** 157. 1787, and subsequently indexed and illustrated as *E. cyathophora).*
Euphorbia heterophylla L. var. *cyathophora* (Jacq.) Griseb., Fl. Brit. W. Indian Is. 54. 1859.
Poinsettia cyathophora (Murray) Klotzsch & Garcke, Monatsber. Königl. Preuss. Akad. Wiss. Berlin **1859:** 253. 1859.

Annual or perennial herb, stems ascending to 50 cm tall, glabrate. Leaves alternate with blades commonly fiddle-shaped or pandurate with 4 acute lobes, or ovate, lanceolate, or sublinear, 5-10 × 1-3 cm, glabrous or sparingly pubescent, uppermost leaves and bracts with pink or scarlet blotches at base. Cyathia glabrous or pubescent, gland solitary, flattened, strongly bilabiate, orifice narrowly oblong. Capsules broadly ovoid, 4 × 5 mm, valve edges sometimes elevated; seeds truncate-ellipsoid, > 3 mm long, not angular, surface sharply tuberculate.

GENERAL DISTRIBUTION: Tropical America, possibly native to the Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, Redonda!, Guadeloupe!, Dominica, Martinique!, Grenada!.

Euphorbia dussii Krug & Urban *in* Duss, Fl. Phan. Antill. Franç, 44. 1897; Urban, Symb. Antill. **1:** 342. 1899.

Type: Martinique, *Duss 69.*
Syn.: *Euphorbiodendron dussii* (Krug & Urban) Millsp., Publ. Field Columbian Mus. Bot. Ser. **2:** 306. 1909.

Erect shrub 1-2 m tall, or tree to 6 m tall. Leaves alternate but aggregated at apex of stem, persistent; blades oblong, 9-15 × 3-5.5 cm, base narrowed to short petiole or subsessile, apex abruptly acuminate or mucronate, margin entire, glabrous, green above but glaucous below. Inflorescences with peduncles 0.5-1.5 cm long, branched 2 or 3 times; bracts deciduous, involucre turbinate, 2.5 mm long, short-stalked, pink, glabrous, lobes suborbiculate, margin lacerate or incised, glands 5, semilunate, reddish. Capsules ovoid, 3 mm in diameter, glabrous; seeds oblong, 4 × 3 mm, red-brown with white protuberances, caruncle > 1 mm long, orange.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Lucia!.

NOTE: In the original publication (1897) only *Duss 69* was cited, but Urban (1899) cited only *Duss 65.*

Euphorbia heterophylla L., Sp. Pl. **1:** 453. 1753.

Lectotype: Unresolved.
Syn.: *Euphorbia linifolia* M. Vahl, Symb. Bot. **2:** 53. 1791. (Type: Santo Domingo, *Thouin s.n.*)
Euphorbia geniculata Ortega, Nov. Pl. Descr. Dec. 18. 1797. (Type: Once living plant, seeds sent by Sessé from Cuba.)
Euphorbia graminifolia Michaux, Fl. Bor.-Amer. **2:** 210. 1803. (Type: Not designated.)
Poinsettia heterophylla (L.) Klotzsch & Garcke, Monatsber. Königl. Preuss. Akad. Wiss. Berlin **1859:** 253. 1859.
Euphorbia heterophylla L. var. *linifolia* (M. Vahl) Kuntze, Revis. Gen. Pl. **2:** 605. 1891.

Annual or perennial herb to 1 m tall, stems pubescent or glabrous, often strongly pilose. Leaves alternate or upper ones opposite, persistent; blades extremely variable even on one stem, mostly ovate to elliptic but also linear to orbiculate, 5-11 × 2-5 cm, margin entire, dentate, sinuate, or pandurate, upper ones and bracts green, basally paler but never red. Involucral lobes ovate or oblong, laciniate, gland solitary, narrow, substipitate, orifice circular. Capsules to 6 mm in diameter; seeds ovoid-oblong, pointed, 2 mm long, angular, bluntly tuberculate in more or less transverse lines, gray.

GENERAL DISTRIBUTION: Worldwide in tropical and subtropical areas as a weed.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Barts!, Barbuda!, Antigua!, St. Eustatius!, Montserrat!, Dominica!, Martinique!, St. Lucia!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Male ipecac, galloping warner.

Euphorbia oerstediana (Klotzsch & Garcke) Boiss. *in* DC., Prodr. **15**(2)**:** 59. 1862.

Basionym: *Poinsettia oerstediana* Klotzsch & Garcke, Monatsber. Königl. Preuss. Akad. Wiss. Berlin **1860:** 103. 1860.
Type: St. Thomas.
Syn.: *Dichylium oerstedianum* (Klotzsch & Garcke) Britton *in* Britton & P. Wilson, Bot. Porto Rico **5:** 499. 1924.

Herb, stems erect or ascending, to 60 cm tall, often geniculate, glabrous. Leaves alternate or upper ones opposite, persistent, with petioles 0.5-1.5 cm long; blades ovate to oblong or ovate-lanceolate, 2-9 × 2-4 cm, base obtuse, apex acute or acuminate, margin mostly entire, without colored blotches, glabrous above, puberulent below. Involucre slender-pediceled, narrowly campanulate, 2.5 mm long, lobes fringed, glands 2, bilabiate with appendages petaloid, green. Capsules 3-4 mm long, puberulent; seeds ellipsoidal, 2.5 mm long with mammiform warts.

GENERAL DISTRIBUTION: Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

Euphorbia petiolaris Sims, Bot. Mag. **23:** pl. 883. 1805. FIGURE 12.

Type: ibid., a cultivated plant originally from Montserrat.

Syn.: *Euphorbia verticillata* Poiret *in* Lam., Encycl. Suppl. **2:** 611. 1812. (Type: St. Thomas, *Ledru s.n.*)

Aklema petiolare (Sims) Millsp., Ann. Missouri Bot. Gard. **2:** 43. 1915.

Shrub to 2.5 m tall, branches swollen at nodes, glabrous. Leaves in whorls of 6 to 11, persistent, with petioles slender, 1.5-2 cm long; blades ovate to orbiculate, 2 × 1.5 cm, base truncate, rounded, or narrowed, apex rounded to emarginate, margin entire. Involucre long-pediceled, hemispheric, smooth, lobes ovate, short-fimbriate, glands 5, transverse, ovate, stipitate, white-margined. Capsules ovoid, 6 mm in diameter, glabrous; seeds ovoid-globose, 3 × 2.4 mm, pointed, foveolate with large, shallow, irregular pits, grooved on one side, white.

GENERAL DISTRIBUTION: Jamaica, Hispaniola, Puerto Rico.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Guadeloupe!, Martinique!.

COMMON NAME: Petit mancinillier.

GARCIA J. P. Rohr

Garcia J. P. Rohr, Skr. Naturhist.-Selsk. **2:** 217. 1792.

Monoecious shrubs or trees. Leaves alternate, petiolate; blades simple, entire; estipulate. Inflorescences terminal clusters of 1 or 2 pistillate and several staminate flowers. Flowers with calyx rupturing into 2 or 3 valvate segments; petals 6 to 13, pink to red; disk dissected into segments; stamens 30 to 100, filaments free, pistillode wanting; pistillate flowers with calyx caducous, disk lobed, ovary of 3 carpels, sericeous, ovules 1 per locule, styles short, bifid, thick. Capsules dehiscent; seeds ecarunculate.

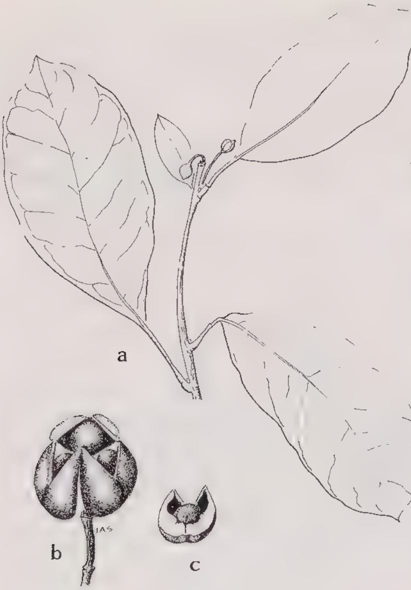
TYPE: *Garcia nutans* J. P. Rohr.

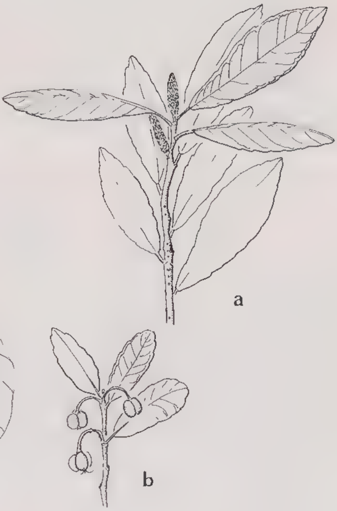
A genus of but 2 species of Mexico to northern South America; introduced elsewhere.

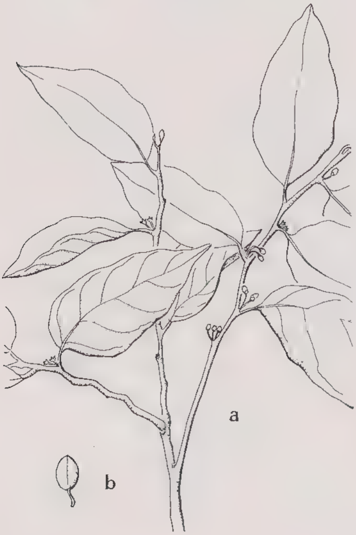
Garcia nutans J. P. Rohr, Skr. Naturhist.-Selsk. **2:** 217, *t. 9.* 1792.
FIGURE 15.

Type: Colombia, ibid.

Shrub or small tree to 12 m tall, twigs tomentulose. Leaves with petioles 1-5 mm long; blades oblong to elliptic, 8-19 × 2.5-7 cm, base rounded, apex acuminate to acute, margin entire, pilose below. Staminate flowers on pedicels > 3.5 cm long, calyx lobes > 12.5 mm long, pubescent, petals linear to







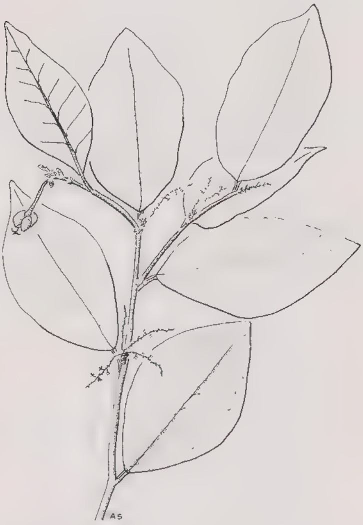


FIGURE 15 (upper left). *Garcia nutans*: a, flowering branch, × 0.35; b, mature fruit, × 0.7; c, fruit segment and seed, × 0.35. FIGURE 16 (upper right). *Gymnanthes lucida*, × 0.35: a, staminate branch; b, pistillate branch. FIGURE 17 (lower left). *Drypetes glauca*, × 0.35. FIGURE 18 (lower right). *Gymnanthes hypoleuca*, × 0.35.

oblong, 10-17 mm long, pink to deep red, hirsute; stamens 50 or more, free; pistillate flowers on shorter pedicels, ovary densely sericeous, styles red or black. Capsules 3-lobed, 2-2.5 cm high, 3-4 cm in diameter, sericeous; seeds globose, > 1.7 cm in diameter.

GENERAL DISTRIBUTION: Native to Mexico.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica, Martinique!, Barbados!.

NOTE: Cultivated or persistent and subspontaneous.

GYMNANTHES Sw.

Gymnanthes Sw., Prodr. 95. 1788.

Monoecious trees or shrubs, all parts glabrous, milky latex present. Leaves alternate, petiolate, these often glandular; blades simple; stipulate. Inflorescences axillary and/or terminal, racemose or paniculate; staminate conelike when young, loosely flowered when mature, bracteate, flowers 2 or 3 subtended by bracteole, naked, stamens 2 to 4; pistillate inflorescences axillary to staminate or often with 2 staminate flowers proximal, ovary on long peduncle, with several alternate bracteoles, naked, 3-lobed, glabrous, ovules 1 per locule, styles 3, recurved. Peduncle and pedicel elongated in fruit; capsules depressed, sometimes tuberculate; seeds ovoid, caruncles white, circular.

LECTOTYPE: *Gymnanthes lucida* Sw.

A genus of ca. 12 species of the southeastern United States, Mexico, Central America, and the West Indies. For pertinent nomenclatural information see G. L. Webster, Taxon **32:** 304-305. 1983.

KEY TO THE SPECIES

Leaves primarily obovate, concolorous, reticulate-veined when dry .... *G. lucida*
Leaves oblong or elliptic, whitish below, venation inconspicuous... *G. hypoleuca*

Gymnanthes hypoleuca Benth., Hooker's J. Bot. Kew Gard. Misc. **6:** 325. 1854. FIGURE 18.

Type: Brazil, *Spruce 2806* (K).

Syn.: *Excoecaria farinosa* Griseb., Abh. Königl. Ges. Wiss. Göttingen 169. 1857; Syst. Veg. Karaiben 21. 1857. (Type: Guadeloupe, *Duchassaing s.n.* (holotype, GOET, n.v.).)

Gymnanthes hypoleuca Benth. var. *latifolia* Muell. Arg., Linnaea **32:** 103. 1863.

Sebastiania hypoleuca (Benth.) Muell. Arg. var. *farinosa* (Griseb.) Muell. Arg. *in* DC., Prodr. **15**(2): 1184. 1866.

Gymnanthes hypoleuca Benth. var. *farinosa* (Griseb.) Muell. Arg. ex Pax & K. Hoff. *in* Engl., Pflanzenr. IV. **147** (Heft 52): 172. 1912.

Ateramnus hypoleucus (Benth.) Rothm., Repert. Spec. Nov. Regni Veg. **53:** 5. 1944.

Tree to 15 m tall, stems glabrous. Leaves with petioles 3-6 mm long; blades elliptic to oblong, 5-12 × 3-6 cm, base acute to obtuse, apex acute to acuminate, margin irregularly undulate or entire, abaxial glands near base 2 or often several, venation inconspicuous, drying glaucous and whitish beneath. Staminate spikes > 2 cm long; pistillate flower on peduncle 1 cm long, becoming 2 cm long in fruit. Capsules depressed, 1 cm in diameter, black; seeds oblong, 6 × 5 mm, plano-convex, brown, caruncle circular, 2 mm in diameter, white.

GENERAL DISTRIBUTION: Northern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, St. Lucia!.

COMMON NAMES: Bois sardine, bwa sadinn.

NOTES: Bentham did not cite Spruce's collection by number in the original publication. A specimen marked "isotype" (GH) bears two specimens and labels as *2806*, which is var. *genuina* Muell. Arg. (*in* DC., Prodr. **15**(2): 1184), and *3780* cited as var. *angustifolia* Muell. Arg. (ibid.). Bentham was unable to find pistillate flowers on his material and suggested that the plant might be dioecious. The Gray Herbarium specimen of *Spruce 2806* has a pistillate flower poorly developed at the base of one staminate inflorescence.

Gymnanthes lucida Sw., Prodr. 96. 1788. FIGURE 16.

Type: Hispaniola, *Swartz s.n.*
Syn.: *Excoecaria lucida* (Sw.) Sw., Fl. Ind. Occid. **2:** 1122. 1800.
Ateramnus lucidus (Sw.) Rottm., Repert. Spec. Nov. Regni Veg. **53:** 5. 1944.

Shrub or tree > 10 m tall. Leaves with petioles 5-10 mm long; blades oblanceolate or obovate, 4-11 × 1.5-4 cm, base cuneate, apex obtuse to emarginate, margin undulate or obscurely serrate near apex, reticulate-veined when dry, coriaceous, concolorous, glabrous, with 1 or 2 glands near base; stipules ovate, caducous. Staminate inflorescences > 3 cm long, stamens 2 or 3; pistillate flowers solitary on curved, bracteate peduncles. Capsules depressed, 1 cm in diameter; seeds ovoid, 5 mm long, brown, caruncle flat, > 2 mm in diameter, white.

GENERAL DISTRIBUTION: Florida, the Bahamas, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Barts!, Barbuda!, Antigua!, St. Eustatius!, Guadeloupe!, Marie Galante!.

COMMON NAME: Kitwood.

NOTE: Specimens seem to be collected most commonly in a season when the staminate inflorescences are tight, axillary, conelike structures.

HEVEA Aublet

Hevea Aublet, Hist. Pl. Guiane **2:** 871. 1775.

Monoecious trees with abundant milky latex. Leaves alternate, petioles with apical glands; blades 3-foliolate; stipulate. Inflorescences axillary, many-flowered panicles composed of cymes, with pistillate flowers in the dichotomies; staminate flowers with calyx dentate or lobed, apetalous, disk present, stamens united in column, pistillode present; pistillate flowers with 3-lobed ovary, ovules 1 per locule, stigma sessile, 3-parted, each bilobed. Capsules large, woody, explosively dehiscent into 2-valved cocci; seeds large, ellipsoidal, ecarunculate.

TYPE: *Hevea guianensis* Aublet.

A genus of 9 species of tropical South America.

Hevea brasiliensis (Willd. ex Adr. Juss.) Muell. Arg., Linnaea **34:** 204. 1865. FIGURE 19.

Basionym: *Siphonia brasiliensis* Willd. ex Adr. Juss., Euphorb. Gen. 113, *pl. 12, fig. 38B.* 1824.
Type: ibid.

Tree to 20 m tall. Leaves with petioles 10-25 cm long; leaflets 3, petiolules > 1 cm long, blades variable in size and shape, elliptic, lanceolate-elliptic, or oblong-obovate, 10-60 × 4-16 cm, base acute or cuneate, apex acuminate or cuspidate, margin entire, often glaucescent below; stipules setaceous, to 2 mm long, caducous. Panicles 10-20 cm long, branchlets grayish white pubescent; staminate flowers short-pedicellate, calyx lobes lanceolate, connate at base, stamens 10 in 2 verticels; pistillate flowers on pedicels to 5 mm long, calyx lobes tomentose, disk lobate, ovary tomentose. Capsules > 4 cm long, 5 mm in diameter; seeds oblong, 2.5-3 × 2 × 1.8 cm, mottled brown and white.

GENERAL DISTRIBUTION: Native of Brazil but cultivated in many tropical areas and naturalized.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Rubber tree, hevea rubber.

NOTE: Cultivated in botanical gardens but planted in rows in mountainous areas and naturalized.

HIPPOMANE L.

Hippomane L., Sp. Pl. **2:** 1191. 1753.

Monoecious trees or shrubs with toxic milky latex. Leaves alternate, petiolate, these bearing single, flattened, orbicular gland; blades simple, margin slightly serrate; stipules present, caducous. Inflorescences terminal, spicate; staminate flowers clustered but aggregates separate, bracts biglandular, calyx 2- or 3-parted, stamens 2; pistillate flowers basal and/or solitary, calyx 3-parted, apetalous, disk wanting, carpels 6 to 10, ovules 1 per locule, styles

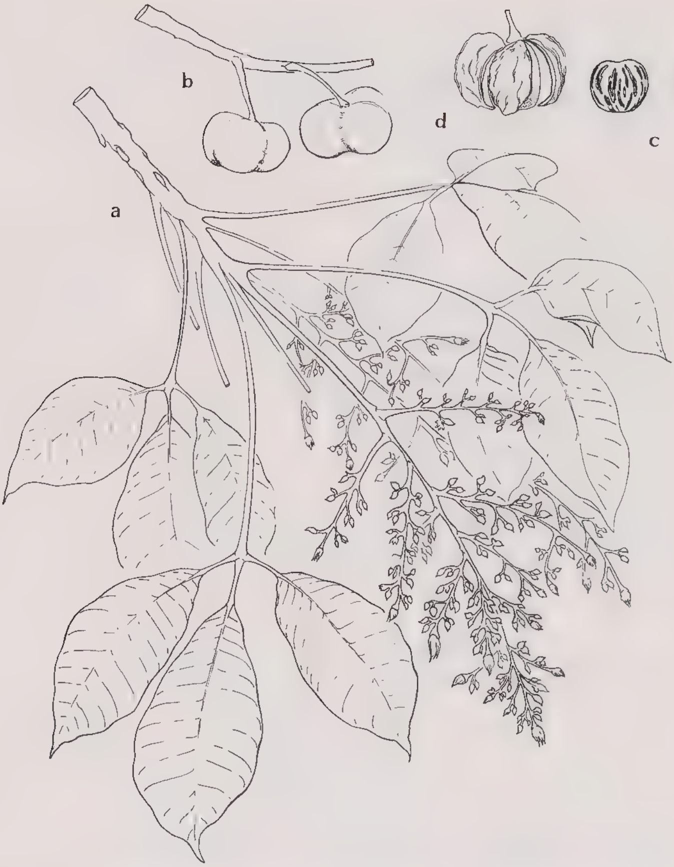


FIGURE 19. *Hevea brasiliensis*, × 0.35: a, flowering branch; b, young fruit; c, mature fruit; d, seed.

united below, spreading above. Drupes apically depressed; seeds compressed, testa dry, ecarunculate.

LECTOTYPE: *Hippomane mancinella* L.; vide M. L. Green, Prop. Brit. Bot. 195. 1929.

A genus of 3 or 4 species widespread in coastal areas of the Caribbean and supposedly introduced into West Africa.

Hippomane mancinella L., Sp. Pl. **2:** 1191. 1753. FIGURE 20.

Lectotype: Sloane, Voy. Jamaica *t. 159.* 1725; typotype: Herb. Sloane **5:** 55 (BM).

Tree to 10 m tall, or stunted plants when on limestone, all parts glabrous. Leaves with petioles 3-5 cm long; blades ovate to elliptic, 5-14 × 4-8 cm, base rounded to subcordate, apex acute or short-acuminate, margin lightly crenulate or serrate, subcoriaceous or slightly fleshy, shiny; stipules lanceolate or ovate, > 2.5 mm long. Inflorescences to 16 cm long, 1 or 2 pistillate flowers at base. Fruits globose to depressed, > 3.5 cm in diameter, yellow and sweet smelling; seeds flattened, 6 mm in diameter, smooth.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, Bahamas, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, Barbuda!, Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Les Saintes!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

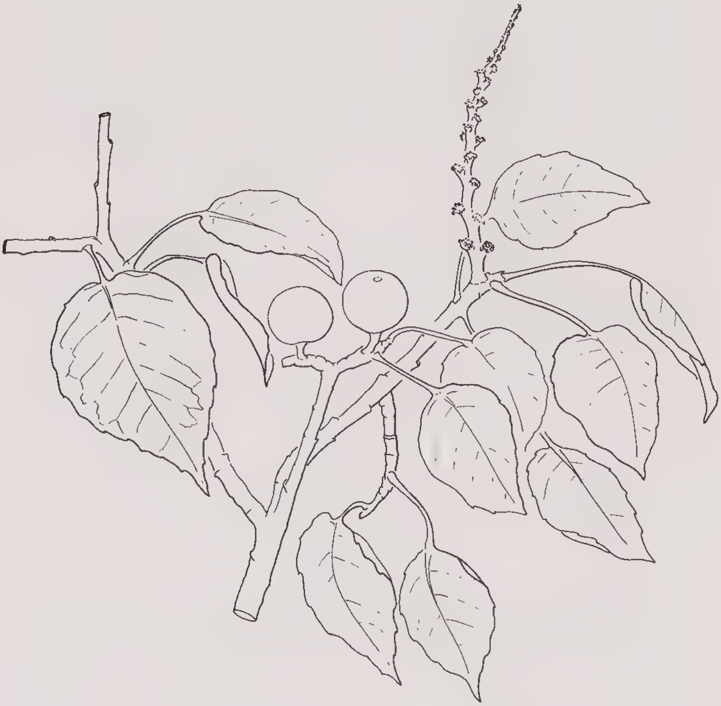


FIGURE 20. *Hippomane mancinella*, × 0.5.

Common names: Manchineel, poison apple, mancenillier, beach apple, médsinnyé.

Note: The toxicity of this plant should not be underestimated. After collecting the plant on many occasions the author finally suffered from his inattention to sap dripping from a cut branch (R. A. Howard, Biotropica **13:** 224-227. 1981). The wood is used in handicraft and carpentry; sawdust from mills or power tools using the wood should be avoided.

HURA L.

Hura L., Sp. Pl. **2:** 1008. 1753.

Very large, monoecious trees with massive trunks when mature, with woody conical spines on trunk and branches, all parts with copious milky latex. Leaves alternate, long-petiolate with 2 round glands at apex; blades simple; stipules caducous. Staminate flowers in terminal, long-pedunculate, fleshy, conical spikes, each flower sessile, sheathed by membranous bract; calyx cupulate, denticulate; disk wanting; stamens numerous, filaments connate, anthers in 2 to several verticels. Pistillate flower solitary or at base of staminate spike, long-pedunculate; calyx broadly cupular, 5-toothed to subentire; disk wanting; ovary of 5 to 20 carpels, ovules 1 per locule, styles connate into column and dilated at apex as radiating lobes. Fruits strongly depressed, explosively dehiscent in woody, bivalved cocci; seeds laterally compressed, ecarunculate.

Type: *Hura crepitans* L.

A genus of 2 or 3 species of tropical America.

Hura crepitans L., Sp. Pl. **2:** 1008. 1753. Figure 21.

Lectotype: Hort. Cliff. *t. 34*.

Tree to 25 m tall. Leaves with petioles to 20 cm long; blades ovate to orbiculate, 12-25 × 7-15 cm, base cordate, apex acuminate to subcuspidate, margin crenate with glandular teeth, prominently pinnate-veined, sparsely long-pubescent on lower surface. Staminate inflorescences on peduncle to 10 cm long, staminate flowers 60 to 80 on axis 2-4.5 cm long, column with 2 or 3 verticels of anthers; pistillate flowers with peduncles > 5 cm long, calyx 3-5 mm long, truncate, stylar column 2.5-5 cm long, fleshy apical disk to 1 cm in diameter, with radiating tips 1 cm long. Capsules woody, depressed, > 8 cm in diameter, 3-5 cm long, dehiscent into ca. 15, crescent-shaped, woody-valved cocci; seeds flattened, suborbicular, 2 cm in diameter, smooth.

General distribution: Mexico, Central America, Greater Antilles, South America.

Distribution in Lesser Antilles: Anguilla!, St. Martin!, Barbuda!, Antigua!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Barbados!.

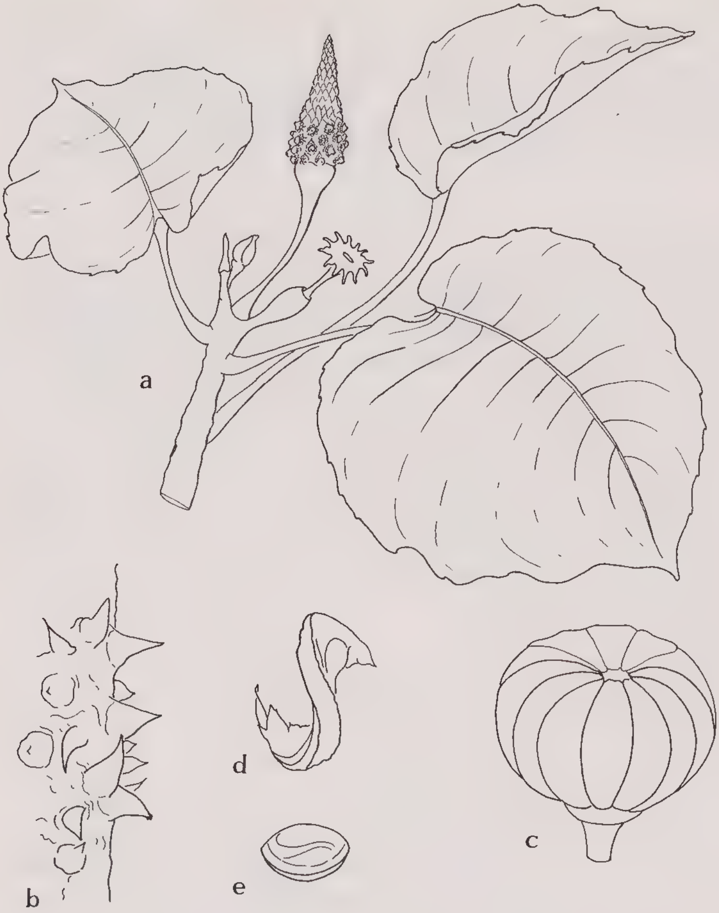


FIGURE 21. *Hura crepitans,* × 0.4: a, flowering shoot; b, stem spines; c, mature fruit; d, single fruit segment; e, seed.

COMMON NAMES: Sand box tree, sablier, gogo tree.

NOTE: It is possible that all the large specimen trees of the Lesser Antilles have been introduced. Occasionally young branches, which will root readily, are used to create living fence posts. The fruits are used whole as wheels for children's toys and the woody valves made into ornamental jewelry.

HYERONIMA Allemão

Hyeronima Allemão, Pl. Novas Brasil 1848.

Syn.: *Stilaginella* Tul., Ann. Sci. Nat. Bot. sér. 3, **15:** 240. 1851. Type: None designated.

Dioecious trees. Leaves alternate, petiolate; blades simple with lepidote pubescence; stipules interpetiolar, free, petiolate, large and small, cucculate, caducous. Inflorescences axillary, paniculate. Staminate flowers pedicellate; calyx 3- to 6-toothed; petals wanting; disk cupulate; stamens 2 to 5; pistillode present. Pistillate flowers with calyx 3- to 6-toothed; petals wanting; disk cupulate, lepidote; ovary 2-celled, ovules 1 per locule, styles 2, bifid. Fruits subglobose, drupaceous; seed 1, testa dry, ecarunculate.

TYPE: *Hyeronima alchorneoides* Allemão.

About 30 poorly defined species of tropical America. The genus sorely needs field study, additional collections, and a revision.

Hyeronima laxiflora (Tul.) Muell. Arg., Linnaea **34:** 67. 1865. FIGURE 22.

Basionym: *Stilaginella laxiflora* Tul., Ann. Sci. Nat. Bot. sér. 3, **15:** 244. 1851. Syntypes: *Schomburgk 879*, *Hostmann 391* (P).

Syn.: *Hyeronima caribaea* Urban, Repert. Spec. Nov. Regni Veg. **16:** 139. 1919. (Type: Dominica, *Ramage s.n.* (holotype, B, destroyed).)

Tree to 30 m or more tall, trunks often exceeding 1 m in diameter, base usually with well-developed buttresses, all parts densely lepidote pubescent. Leaves with petioles 4-16 cm long; blades broadly elliptic, 10-38 × 5-22 cm, base acuminate, obtuse, or rounded, apex obtuse to apiculate, slightly roughened above, sparsely lepidote on both surfaces; stipules lanceolate and flat to elliptic and cucullate, inflated, 0.5-4 × 0.3-2 cm. Panicles axillary, staminate 9-15 cm long, pistillate 4-6 cm long; bracts on main axes resembling stipules; staminate flowers with densely lepidote calyx, stamens 4; pistillate pedicels to 2 mm long in fruit, ovary covered with peltate scales. Drupes ellipsoidal, 2-2.5 × 2-2.4 mm; seeds brown, 2 mm long.

GENERAL DISTRIBUTION: Central America, Trinidad, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, St. Lucia!, St. Vincent!.

COMMON NAME: Bois d'amande.

NOTES: This material was reported as *H. clusioides* (Tul.) Muell. Arg. by Britton and Wilson, occurring in Puerto Rico, and in Dominica and Grenada. *Hyeronima clusioides* is now considered endemic to Puerto Rico. Urban's species, *H. caribaea*, cannot be distinguished from the Guiana material of *H. laxiflora*.

Although the condition of large leaf size and conspicuous stipules is generally associated with seedlings or adventitious shoots, we have collected such specimens from normal branches of fully flowering trees 20 m tall.

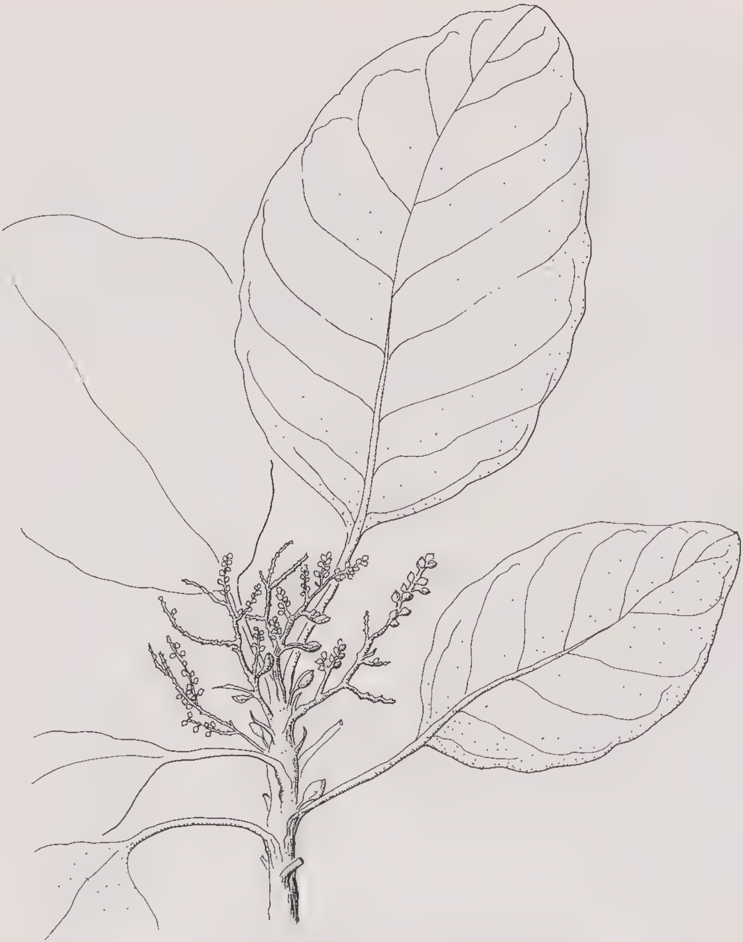


FIGURE 22. *Hyeronima laxiflora*, × 0.5.

JATROPHA L.

Jatropha L., Sp. Pl. **2:** 1006. 1753.

Monoecious trees or shrubs, with clear or slightly milky latex. Leaves petiolate; blades simple or palmately lobed and divided, entire to serrate; stipules minute, glandular or of branched, terete, glandular setae. Inflorescences axillary or terminal, dichasial with pistillate flowers in the dichotomies, pedunculate; staminate flowers numerous, calyx 5-lobed, imbricate, petals 5, colored, hirsute, disk entire or segmented, stamens 8 to 12, filaments usually united below, often in 2 whorls, anthers twisted, pistillode wanting; pistillate flowers with similar calyx and corolla, disk annual or dissected, ovary of 3 carpels, glabrous or pubescent, ovules 1 per locule, styles connate at base, entire or bifid. Capsules fleshy or dry, eventually dehiscent; seeds large, slightly flattened, often beaked, caruncle fleshy, bilobed or fimbriate-erose.

LECTOTYPE: *Jatropha gossypiifolia* L.

A genus of ca. 175 species occurring in southwestern United States (also in southernmost Florida), Mexico, Central America, the West Indies, and portions of South America, Africa, and India. For additional information see R. McVaugh, Bull. Torrey Bot. Club **71:** 457. 1944; B. Dehgan & G. L. Webster, Univ. Calif. Publ. Bot. **74:** 1-73. 1979; and R. L. Wilbur, Taxon **30:** 39-42. 1981.

KEY TO THE SPECIES

1. Flowers pink, red, or scarlet.
    2. Leaves peltate; stems swollen at base at least in young plants; fruits oblong, glabrous. Cultivated . . . . *J. podagrica*
    2. Leaves epeltate.
        3. Stipules fimbriate-dissected.
            4. Leaves deeply 3- to 5-lobed, glandular-margined; pubescence of stems and petioles with similar branched setae; petals dark purplish red; ovary and capsule pubescent . . . . *J. gossypiifolia*
            4. Leaves deeply 5- to 11-lobed, glaucous below; petioles glabrous; petals coral-red; ovary and capsule glabrous . . . . *J. multifida*
        3. Stipules ovate and entire or minute, not glandular; petioles glabrous; blades mostly ovate to elliptic, basally hastate or shallowly lobed or panduraeform or rounded; petals bright red . . . . *J. integerrima*
1. Flowers green to yellowish white; leaves shallowly lobed, these rounded or acute . . . . *J. curcas*

Jatropha curcas L., Sp. Pl. **2:** 1006. 1753. FIGURE 25.

Type: Unresolved, possibly Herb. Cliff. 445, *Jatropha 3* (BM).

Shrub or small tree to 5 m tall, stems glabrous but flowers and inflorescences crispose to tomentose. Leaves with petioles 9-15 cm long; blades ovate in outline, shallowly 3- to 7-lobed, 10-25 × 9-15 cm, base deeply cordate to subtruncate, apex acute, those of lobes rounded or acute-triangular, palmately veined; stipules minute, hidden in pubescence. Inflorescences terminal, peduncles to 10 cm long with green to yellowish flowers; staminate flowers many, calyx lobes elliptic, 3-3.5 mm long, petals obovate, 5-6 mm long, hirsute adaxially, disk 5-lobed, stamens 10; pistillate flowers few, calyx lobes oblong to lanceolate, rounded or acute, ovary glabrous, styles slender, dilated at ends. Capsules ellipsoidal, to 3.5 × 2 cm, fleshy, yellow, drying black and eventually dehiscing; seeds oblong, 15-22 × 10 mm, beaked, mottled brown or black, caruncle lobed.

GENERAL DISTRIBUTION: Mexico and Central America, introduced and cultivated elsewhere in the tropics.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Saba!, St. Eustatius!, Montserrat!, Guadeloupe!, Dominica!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Physic nut, médecinier béni, médicinier barrière.

NOTES: Cultivated in yards and occurring as living fence posts, or spontaneous. Seeds were or are used as a violent laxative.

Jatropha gossypiifolia L., Sp. Pl. **2:** 1006. 1753.

Lectotype: LINN 1141.1.
Syn.: *Adenoropium elegans* Pohl, Pl. Bras. Icon. Descr. **1:** 15. 1826. (Type: Brazil, *C. Martius s.n.*)
Adenoropium gossypifolium (L.) Pohl, Pl. Bras. Icon. Descr. **1:** 16. 1826.
Jatropha elegans (Pohl) Klotzsch *in* Seemann, Bot. Voy. Herald 102. 1853.
Jatropha gossypiifolia L. var. *elegans* (Pohl) Muell. Arg. *in* DC., Prodr. **15**(2): 1087. 1866.

Slightly woody shrub to 2 m tall, stems glabrous or densely villose and with glandular setae. Leaves with petioles 3-6 cm long, with branched, glanduliferous setae; blades orbiculate or broadly ovate in outline, 3- to 5-lobed occasionally to base, 4-13 × 4-19 cm, lobes oblong or elliptic, base cordate, apices acute or short-acuminate, margin irregularly glandular denticulate; stipules much-branched, glanduliferous setae. Inflorescences on peduncles > 5 cm long; bracts linear-oblong, laciniate, glandular; staminate flowers with sepals ovate, > 5 mm long, laciniate, glandular, > 5 mm long, petals > 7.5 mm long, dark purplish red, stamens 8 to 12; pistillate flowers puberulent, ovary pubescent. Capsules subglobose, > 1 cm long, hirsute; seeds oblong, slightly flattened, 7.3 × 5.5 mm, dark gray to brown, often mottled, caruncle deeply lobed.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, Bahamas, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Physic nut, belly-ache bush, figus nut, médicinier noir, médicinier bâtard, médicinier rouge.

NOTES: Often forming dominant stands in dry areas and on wastelands, stream beds, etc. Populations of the pubescent phase are noticeably distinct from the often ornamental, red-leaved, and glabrous variety *elegans*.

Jatropha integerrima Jacq., Enum. Syst. Pl. 32. 1760; Select. Stirp. Amer. Hist. 256, *t. 183, fig. 47.* 1763.

Type: loc. cit. *t. 183, fig. 47.*

Syn.: *Jatropha hastata* Jacq., Enum. Syst. Pl. 32. 1760; Select. Stirp. Amer. Hist. 256, *t. 173, fig. 54.* 1763. (Type: loc. cit. *t. 173, fig. 54.*)

Jatropha acuminata Desr. *in* Lam., Encycl. **4:** 8. 1797. (Type: Santo Domingo, *Roquefort s.n.* (holotype, P-JU #16507; IDC 6206. **1194:** III. 6, photo!).)

Adenoropium hastatum (Jacq.) Britton & P. Wilson, Bot. Porto Rico **5:** 485. 1924.

Jatropha integerrima Jacq. var. *hastata* (Jacq.) Fosb., Rhodora **78:** 102. 1976.

Shrub to 4 m tall, branches and foliage glabrous or sparsely hirsute. Leaves with petioles 3-7 cm long, glabrous; blades ovate to elliptic or variously lobed, hastate or panduraeform, 5-15 × 2.5-8 cm, base rounded or subcordate, apex short-acuminate, palmately nerved at base, pinnate above; stipules ovate-triangular, 1.5 mm long, eglandular. Inflorescences with peduncles to 10 cm long; staminate flowers with calyx lobes ovate, 2-3.5 mm long, petals elliptic-ovate, 15-22 mm long, bright red, adaxially hirsute at base, stamens 10, filaments in 2 whorls, connate below; pistillate flowers central in cymes, on pedicels to 9 mm long, calyx lobes oblong to lanceolate, to 9 mm long, petals 10-15 mm long, red, ovary glabrous. Capsules subglobose to oblongoid, trisulcate, 12 × 12 mm; seeds oblong, flattened, 10 × 5 mm, gray or mottled, caruncle flabellate-laciniate.

GENERAL DISTRIBUTION: A native of Cuba now commonly cultivated in the neotropics.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Épicar, médicinier.

NOTES: McVaugh appears to be the first to combine Jacquin's two species and other Jatrophas under the name *J. integerrima* Jacq. The majority of the synonymous taxa have been described from cultivated plants that originated in different provinces of Cuba. The final treatment cannot be reached until recently collected specimens from Cuba become available. Each type of leaf variation seems to occur predominately in separate provinces of Cuba and Hispaniola, and it is probable that several varieties should be recognized. The distribution in the Lesser Antilles is that of cultivated plants or those persisting after cultivation. Each leaf type is readily propagated from cuttings, but seedlings and clearly naturalized plants are few.

Jatropha multifida L., Sp. Pl. **2:** 1006. 1753.

Type: Unresolved, but not LINN 1141.9.

Shrub to 5 m tall, stems glabrous. Leaves with petioles > 15 cm long, glabrous; blades orbiculate in outline, deeply 5- to 11-lobed, 10-30 × 25-34 cm, lobes linear-lanceolate to lanceolate-elliptic, to 2 cm wide, often irregularly lobed or pinnatifid with sharp dentitions, base cordate, apices long-acuminate, commonly glaucous below; stipules fimbriate-setose and eglandular. Inflorescences with peduncles > 25 cm long; staminate flowers with calyx campanulate, lobes ovate-oblong, 3 mm long, petals 6 mm long, rose to scarlet, stamens 7 or 8, free; pistillate flowers with calyx lobes 2 mm long, petals oblong, 6 mm long, rose-scarlet, ovary glabrous. Capsules obturbinate, 3 × 3.5 cm, 2- or 3-lobed, ridged, fleshy, yellow; seeds compressed, 1.5 × 1.5 cm, pale brown.

GENERAL DISTRIBUTION: Native of tropical America but now widely cultivated.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Saba!, St. Eustatius!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Coral plant, French physic nut, Spanish physic nut, corail.

NOTE: The majority of records cited are probably of cultivated plants. However, seedling plants are abundant, easily transplanted, and probably naturalized.

MANIHOT Miller

Manihot Miller, Gard. Dict. abr. ed. 4. 1754.

Monoecious shrubs with extensive swollen storage roots, cultivated for starch, sap clear to slightly milky, stems smooth, red or green. Leaves alternate, petiolate; blades palmately 3- to 7-lobed or entire, usually glaucous below; stipules small, caducous. Inflorescences racemose, the lower flowers pistillate, apetalous; staminate flowers with calyx lobes partially united, yellow, green, or purple, stamens 10 in two series, disk lobed, pistillode wanting; pistillate flowers with calyx lobes slightly united, ovary of 3 carpels, ovules 1 per locule, styles 3. Capsules 3-lobed; seeds carunculate.

TYPE: *Jatropha manihot* L. = *Manihot esculenta* Crantz.

A genus of over 100 ill-defined species of tropical America. For additional information see D. L. Rogers, Fl. Neotropica Monogr. **13:** 1-272. 1973.

Manihot esculenta Crantz, Inst. Rei Herb. **1:** 167. 1766. FIGURE 23.

Lectotype: Merian, Dissert. 4, *fig. 4, 5.*
Syn.: *Jatropha manihot* L., Sp. Pl. **2:** 1007. 1753. (Type: Not designated.)
Janipha manihot (L.) Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **2:** 85 (ed. folio), 108 (ed. quarto). 1817.
Manihot utilissima Pohl, Pl. Bras. Icon. Descr. **1:** 32, 34. 1826, nom. nov. for *Jatropha manihot* L.
Manihot manihot (L.) Cockerell, Bull. Torrey Bot. Club **19:** 95. 1892.

Shrub > 3 m tall, glabrous, older stems conspicuously nodose. Leaves with petioles 5-15 cm long; blades deeply 3- to 5- to 7-lobed, 9-12 × 2-4 cm, lobes

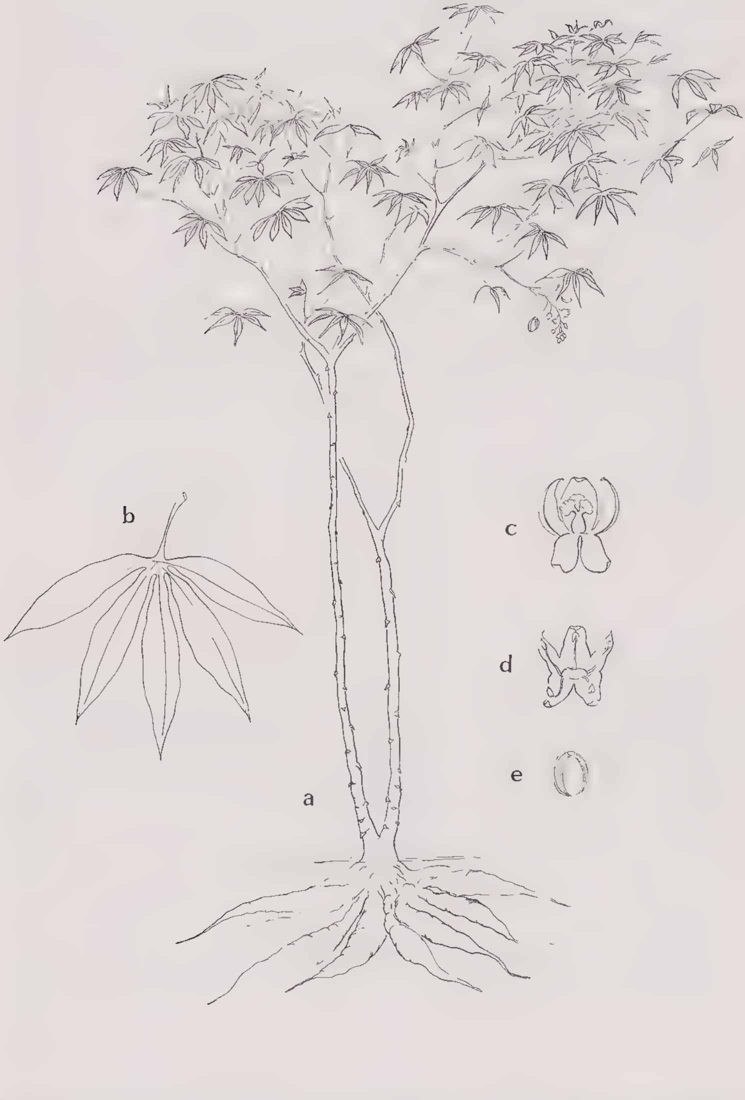


FIGURE 23. *Manihot esculenta*: a, habit, diagrammatic; b, leaf, × 0.4; c, pistillate flower, × 0.8; d, staminate flower, × 0.8; e, mature fruit, × 0.4.

elliptic-lanceolate, base truncate, apices of lobes acuminate, glaucous beneath; stipules lanceolate, 7-8 mm long. Inflorescences 5-10 cm long with peduncles 4 cm long; staminate flowers on pedicels 4-6 mm long, calyx lobes deltoid-triangular, 2-5 mm long; pistillate flowers on pedicels 7-12 mm long, calyx lobes oblong-lanceolate, 7.5-10 mm long, ovary 6-ribbed. Capsules to 1.5 × 1.3 cm, rugose and winged; seeds compressed, 7-9 × 4-5 mm, beaked, mottled, brown, caruncle deltoid, 1.5 × 3.8 mm.

GENERAL DISTRIBUTION: Native of South America widely cultivated in the tropics.

DISTRIBUTION IN LESSER ANTILLES: Barbuda!, Antigua!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

COMMON NAMES: Manihot, manioc noir, cassava, yuca.

NOTES: *Manihot esculenta* is probably cultivated on most if not all of the islands of the Lesser Antilles but is poorly represented in herbaria. The plants grown in the area commonly flower but rarely are seen in fruit. Propagation is from stem cuttings. Bitter and sweet cassava plants are recognized but the stem color is not a reliable character if local explanations are accepted.

Manihot glaziovii Muell. Arg., with peltate leaves and smooth capsules, has been cultivated in the area. A manihot plant with variegated leaves has also been seen in gardens.

MARGARITARIA L. f.

Margaritaria L. f., Suppl. Pl. 66. 1782.

Dioecious shrubs or small trees; branches conspicuously lenticellate. Leaves alternate, deciduous; blades simple, entire, chartaceous; stipulate Inflorescences of clustered flowers on short shoots, apetalous; staminate flowers long-pedicellate, calyx lobes 4, fused below, disk annular and entire, stamens 4, pistillode wanting; pistillate flowers with shorter pedicels, calyx lobes 4, fused below, ovary of 2 to 5 carpels, ovules 2 per locule, styles free, flattened apically, bifid. Capsules long-pedicellate, irregularly dehiscent, exocarp separating from paler endocarp; seeds 2 in each locule, sarcotesta blue, fleshy, inner testa woody, smooth or rugose, ecarunculate.

TYPE: *Margaritaria nobilis* L. f.

A genus of 14 species occurring in both the New and Old World tropics. For additional information see G. L. Webster, J. Arnold Arbor. **60:** 403-444. 1979.

Margaritaria nobilis L. f., Suppl. Pl. 428. 1782. FIGURE 24.

Type: Unresolved, but see Webster (1979, p. 414).
Syn.: *Cicca antillana* Adr. Juss., Euphorb. Gen. 108, *t. 4, fig. 13B.* 1824. (Type: ibid.)
Phyllanthus antillanus (Adr. Juss.) Muell. Arg., Linnaea **32:** 51. 1863.
Phyllanthus nobilis (L. f.) Muell. Arg. *in* DC., Prodr. **15**(2): 414. 1866.
Margaritaria nobilis L. f. var. *antillana* (Adr. Juss.) Stehlé & Quentin, Fl. Guadeloupe **2**(1): 47. 1938.

Shrub or tree > 8 m tall. Leaves with petioles > 5 mm long; blades ovate-lanceolate, elliptic, or oblong, 4.5-12 × 2-4.5 cm, base cuneate, apex acuminate, glabrous, often glaucous when young; stipules oblong, 1.5-2.5 mm long. Staminate flowers 5 to 20 per fascicle, pedicels > 5 mm long, calyx lobes 1-1.7 mm long; pistillate flowers 1 to 3, on pedicels to 1.5 cm long in fruit, calyx lobes characteristically reflexed in fruit. Capsules depressed-globose, 9-12 mm in diameter; seeds oblong, 3-4 mm long, blue-black.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Saba!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada.

COMMON NAMES: Zau boeuf, breaknail, coco carrette, bois savane, bois-diable, mille branches.

NOTE: Staminate plants have been collected very frequently in leafless condition or with young leaves just expanding.

OMPHALEA L.

Omphalea L., Syst. Nat. ed. 10, **2:** 1264. 1759, nom. cons.

Monoecious lianas or small trees, latex clear. Leaves alternate, petiolate with 2 glands at apex; blades entire or lobed, coriaceous; stipulate. Inflorescence axillary, paniculate, bracts often foliaceous; staminate flowers cymose, calyx lobes 4, valvate, apetalous, disk present, fleshy, stamens 2 or 3, anthers united, pistillode wanting; pistillate flowers with 4 calyx lobes, petals wanting, disk annual, ovary 2- or 3-carpellate, sericeous, not winged, ovules 1 per locule, styles connate in stout column. Fruit fleshy but dehiscing into 3 two-valved cocci; seeds subglobose, compressed, ecarunculate.

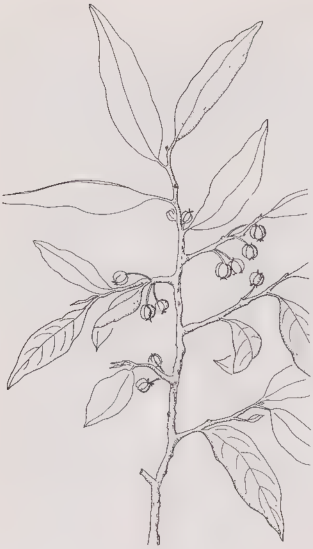
TYPE: *Omphalea triandra* L., typ. cons.

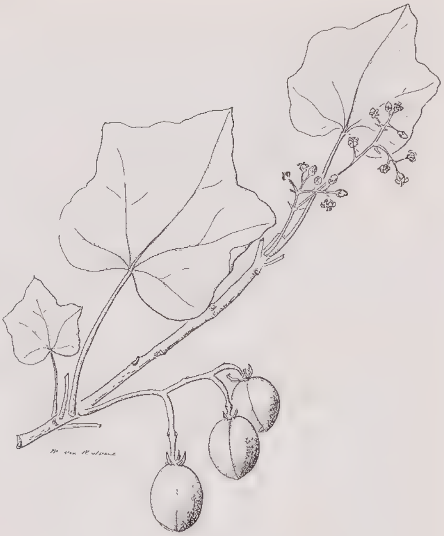
A genus of 15 species of the neotropics and tropical Asia.

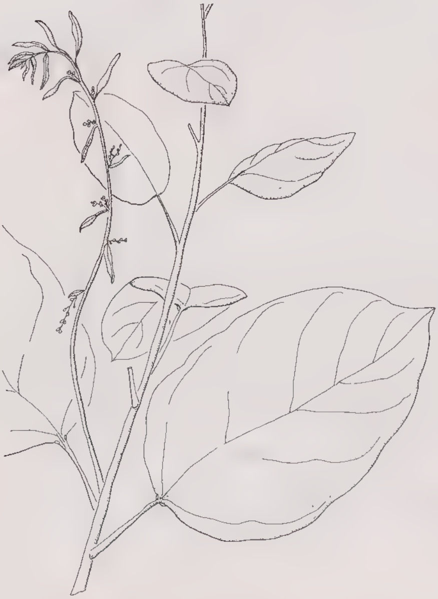
Omphalea diandra L., Syst. Nat. ed. 10, **2:** 1264. 1759. FIGURE 26.

Type: Unresolved.
Syn.: *Omphalea cordata* Sw., Prodr. 95. 1788, nom. superfl.

Liana to 15 m tall. Leaves with petioles 2-11 cm long, massive glands at apex; blades elliptic to oblong, 10-22 × 4.5-7 cm, base rounded, apex obtuse,







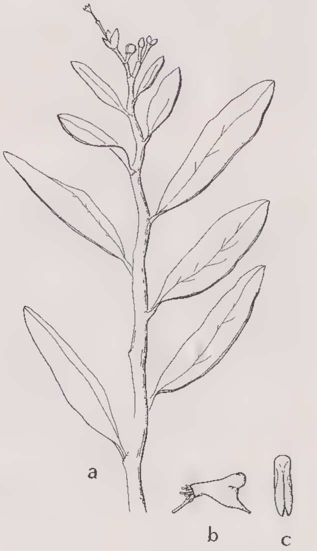


FIGURE 24 (upper left). *Margaritaria nobilis*, × 0.35. FIGURE 25 (upper right). *Jatropha curcas*, × 0.35. FIGURE 26 (lower left). *Omphalea diandra*, × 0.35. FIGURE 27 (lower right). *Pedilanthus tithymaloides*: a, flowering branch, × 0.35; b, cyathium side view, × 0.7; c, cyathium dorsal view, × 0.7.

margin entire, pubescent below becoming glabrous; stipules ovate, to 2.5 mm long. Inflorescences paniculate, > 50 cm long, branches few, cymose, pubescent; bracts linear, 5-7 mm long, biglandular; staminate flowers on pedicels > 2.5 mm long, calyx lobes biseriate, ciliate, stamens 2, connective extended laterally; pistillate flowers on pedicels > 2 mm long, calyx lobes pubescent, caducous, stylar column > 2.5 mm long. Fruits globose, 8-12 cm in diameter, fleshy; seeds round but compressed, 3.5-4.5 cm long, rugulose, brown.

GENERAL DISTRIBUTION: Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!.

COMMON NAMES: Liana-papaye, pomme-zombi, pomme à diable, papaye à diable, noix de cayenne.

NOTE: Very poorly represented in herbaria.

PEDILANTHUS Poit.

Pedilanthus Poit., Ann. Mus. Natl. Hist. Nat. **19:** 388. 1812, nom. cons.

Monoecious shrub with fleshy, often zigzag stems and copious milky latex. Leaves alternate or distichous; blades entire or undulate, thick and fleshy; stipules glandular. Inflorescences terminal or axillary, bracteate racemes with cymes in compressed, oblique involucres (pseudanthia), these strongly zygomorphic, gibbose at base and internally glandular; staminate flowers numerous, of 1 stamen, without perianth; pistillate flowers single, ovary 3-celled, ovules 1 per locule, style long-protruding. Capsules dehiscent; seeds ecarunculate.

TYPE: *Euphorbia tithymaloides* L. = *Pedilanthus tithymaloides* (L.) Poit.

A genus of 14 species of tropical areas. For additional information see R. Dressler, Contr. Gray Herb. **182:** 1-188. 1957.

Pedilanthus tithymaloides (L.) Poit., Ann. Mus. Natl. Hist. Nat. **19**: 393, *t. 19, fig. 1.* 1812. FIGURE 27.

Basionym: *Euphorbia tithymaloides* L., Sp. Pl. **1:** 453. 1753.
Type: Unresolved; possibly Herb. Cliff.
Syn.: *Euphorbia tithymaloides* β *padifolius* L., Sp. Pl. **1:** 453. 1753. (Type: Specimen in Dillenius herb. (OXF).)
Pedilanthus angustifolius Poit., Ann. Mus. Natl. Hist. Nat. **19:** 393, *t. 19, fig. 2.* 1812. (Type: Santo Domingo, *Poiteau s.n.* (P).)
Pedilanthus padifolius (L.) Poit., Ann. Mus. Natl. Hist. Nat. **19:** 393. 1812.
Pedilanthus tithymaloides (L.) Poit. ssp. *padifolius* (L.) Dressler, Contr. Gray Herb. **182:** 156. 1957.

Shrubs often forming dense clumps with stems > 2 m tall, glabrous. Leaves with petioles 5-10 mm long; blades obovate, oblanceolate, or elliptic, 6-10 × 2.5-7 cm, base cuneate, apex obtuse, margin often undulate, midrib thick. Inflorescences to 7 mm in diameter; bracts ovate, 8-15 × 4.5-8 mm, apiculate, red; involucral tube > 12 mm long, yellow-green or red, basal spur to 3.5 mm in diameter, red; staminate flowers ca. 25. Fruiting pedicels > 1.5 cm long, capsules oblong, 6 × 7 mm; seeds ovoid-oblong, 4-5 mm long, gray or brown.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Antigua!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Slipper plant, milk bush, jew bush, bleeding heart, herbe à cors, bois-lait, lait à cors, grosse oreilles, patagon, pantoufle, redbird flower.

NOTES: Dressler recognized several subspecies but noted that there is integration between them.

PHYLLANTHUS L.

Phyllanthus L., Sp. Pl. **2:** 981. 1753.

Monoecious trees, shrubs, or more commonly herbs. Leaves alternate, petiolate; blades simple or reduced to cataphylls subtending deciduous branchlets that are pinnate or bipinnatiform with few to many leaves, or branchlets flattened as cladophylls bearing marginal cymules, usually glabrous, often paler beneath; stipules present, interpetiolar, free. Inflorescences axillary, single-flowered and hanging below leaves or in naked terminal thyrses, or cauliflorous on short shoots on old wood, with staminate flowers proximal or distal, or cymules bisexual and flowers variously intermixed. Staminate flowers pedicellate; calyx lobes imbricate; apetalous; stamens 2, 3, 5, or 6, filaments free or more commonly fused into column, with anthers borne laterally at apex or terminally; disk of various sizes and divisions; pistillode wanting. Pistillate flowers usually pedicellate; calyx lobes imbricate or occasionally biseriate, 5 or 6; apetalous; disk variable in size and divisions; ovary sessile, 3-lobed but 3- to 10-carpellate, smooth or tuberculate, ovules 2 per locule, styles 3, free or united, variously bifid or divided. Fruit a fleshy or dry capsule, splitting into 2-valved cocci, often explosively dehiscent; seeds rarely fleshy, usually trigonous with transverse ridges or longitudinal striae or individual processes or smooth and with colored dots, ecarunculate.

LECTOTYPE: *Phyllanthus niruri* L.; vide J. K. Small *in* N. L. Britton & A. Brown, Ill. Fl. N. U.S. ed. 2, **2:** 453. 1913.

A genus of 650 species throughout the tropics and common as a weed. G. L. Webster's studies of the species in the West Indies are the basis of the following treatment. For additional information see G. L. Webster., Contr. Gray Herb. **176:** 45-63. 1955; J. Arnold Arbor. **37:** 1-14, 91-122, 217-256, 340-357. 1956; **38:** 51-79, 170-198, 295-372. 1957; and **39:** 49-100, 111-212. 1958.

Key to the Species

1. Leaves on main axis not reduced to scales; lateral branches persistent.
  2. Herbs; flowers borne in axils of leaves; fruits subsessile; leaves elliptic to obovate, 5-20 × 2-10 mm, apex obtuse or apiculate....... *P. caroliniensis*
  2. Shrubs to 2 m tall; flowers borne in naked, thyrsoid clusters at ends of branches; fruiting pedicels 7-13 mm long; leaves elliptic to ovate, 2.5-4.5 × 1.2-2.5 cm, apex subacute.. *P. andersonii*
1. Leaves on main axis reduced to scales (cataphylls); lateral branches deciduous.
  3. Branchlet axes flattened and dilated into phylloclades; woody shrubs.. *P. epiphyllanthus*
  3. Branchlet axes not flattened and dilated; leaves well-developed.
    4. Branches bipinnatiform; woody shrubs or trees.
      5. Pubescence reddish; calyx lobes 5; pistillate pedicels and leaves smooth and glabrous.
        6. Leaves ovate or elliptic, symmetric at base, 3-5 × 2-3.5 cm; styles undivided, united into column 3.5 mm high, exserted beyond calyx.. *P. ovatus*
        6. Leaves asymmetric at base, smaller.
          7. Leaves broadly oblong to obovate, 18-30 × 8-15 mm; styles fused in massive column higher than ovary.......... *P. megapodus*
          7. Leaves oblong to oblong-ovate, 5-11 × 2-4 mm; styles free or only shortly connate, spreading or reflexed........ *P. mimosoides*
      5. Pubescence not reddish; calyx lobes 6; pistillate pedicels and leaves scabridulous or hirsutulous.
        8. Leaves ovate, 2-4.5 × 1-2.5 cm, apex abruptly cuspidate-acuminate, base obtuse................................ *P. acuminatus*
        8. Leaves elliptic, 14-26 × 6-9 mm, apex acute, base cuneate.. *P. subglomeratus*
    4. Branches pinnatiform.
      9. Trees or shrubs.
        10. Flowers mostly borne on naked cauliflorous thyrses.
          11. Leaves to 40 per branch, ovate to ovate-lanceolate, 5-9 cm long; stamens free; fruits 1.5-2 cm dia. .... *P. acidus*
          11. Leaves to 100 per branch, linear-oblong, 12-20 × 2-5 mm; stamens united; fruits 2.5-3 cm dia. .... *P. emblica*
        10. Flowers borne in cymules axillary to normal leaves.
          12. Branchlets geniculate or zigzag; leaves elliptic, 15-25 × 10-15 mm; calyx lobes oblong, entire; stamens 5; fruits baccate, carpels 9 or 10............................. *P. reticulatus*
          12. Branchlets straight; leaves oblong-elliptic, asymmetrical, lower leaves of branchlets reduced to scales; calyx lobes ovate, lacerate; stamens 2; carpels 3..................... *P. pulcher*
      9. Herbs.
        13. Stamens 5, entirely free; flowers on capillary pedicels; annual herbs with membranous leaves; seeds roughened.......... *P. tenellus*
        13. Stamens 2 or 3; pedicels often thickened.
          14. Ovary bullate-papillate; fruits subsessile; seeds transversely ribbed and usually deeply pitted on sides; leaves marginally hispidulous.............................. *P. urinaria*

14. Ovary smooth or papillose; seeds mostly verruculose or longitudinally ribbed but never transversely ribbed or foveolate; leaves not hispidulous.
  15. Seeds verruculose, dark gray to brown or black; cataphyllary stipules linear-lanceolate, apex attenuate; leaves oblique at base .... *P. niruri*
  15. Seeds longitudinally striate or ribbed; cataphyllary stipules broad, not attenuate; leaves not oblique at base.
    16. Perennial herb from woody caudex; cataphyllary stipules becoming dark reddish or black, indurate, conspicuously auriculate at base .... *P. pentaphyllus*
    16. Weedy annual herbs; cataphyllary stipules thin and membranous or scarious, not indurate or auriculate at base.
      17. Seeds with 5 to 7 longitudinal ribs.
        18. Cymules bisexual, each with 1 staminate and 1 pistillate flower; pistillate calyx lobes acute or apiculate .... *P. amarus*
        18. Cymules unisexual; calyx lobes obtuse.
          19. Branchlets smooth, stem often angled; leaves usually narrowed to a point; styles spreading and appressed.... .... *P. debilis*
          19. Branchlets scabridulous, stems not conspicuously angled; leaves rounded at apex; styles erect or spreading.... .... *P. fraternus*
      17. Seeds with 9 to 12 very delicate, scarcely raised, longitudinal striae.
        20. Filaments completely united; pistillate disk angled or 5-lobed; leaves obtuse or subtruncate at apex; seeds 1-1.3 mm long .... *P. stipulatus*
        20. Filaments united only in lower half; pistillate disk parted into 3 linear segments; leaves narrowed at apex; seeds < 1 mm long.................................. *P. caribaeus*

Phyllanthus acidus (L.) Skeels, U.S.D.A. Bur. Pl. Industr. Bull. **148:** 17. 1909.

Basionym: *Averrhoa acida* L., Sp. Pl. **1:** 428. 1753.
Type: Unresolved, but see Webster (1957, p. 68).
Syn.: *Cicca disticha* L., Mant. Pl. **1:** 124. 1767. (Type: Not designated.)
Phyllanthus distichus (L.) Muell. Arg. *in* DC., Prodr. **15**(2): 413. 1866.

Tree to 10 m tall, all parts glabrous; main axis with leaves reduced to cataphylls; branchlets pinnatiform, to 50 cm long. Leaves 25 to 40 per branch; petioles 2.5-4 mm long; blades ovate to ovate-lanceolate, 5-9 × 2.5-4.5 cm, base rounded, apex acute, margin entire, often subglaucous below. Inflorescences dense cymules aggregated on perennial spur shoots, cauliflorous; axis to 20 cm long. Flowers on pedicels to 5 mm long; stamens free. Fruits drupaceous, flattened, 1.5-2 cm in diameter, 1-1.5 cm high, with acid, yellow flesh, dehiscent when completely dry.

GENERAL DISTRIBUTION: Native to South America (Webster 1957, p. 71) but cultivated in many tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Otaheite gooseberry, surelle, pomme-surelle.

NOTES: Usually a cultivated plant but some specimens are seemingly naturalized. Anderson reported that three plants were brought to the St. Vincent Botanic Garden by Bligh on the Providence in 1793.

Phyllanthus acuminatus M. Vahl, Symb. Bot. 95. 1791.

Type: Trinidad, *Ryan s.n.* (holotype, C).
Syn.: *Phyllanthus conami* Sw., Prodr. 28. 1788, as to description, nom. superfl.
Phyllanthus brasiliensis sensu Velez, not (Aublet) Poiret.

Shrub or small tree > 8 m tall; main axis with cataphylls; deciduous branchlets bipinnatiform, to 50 cm long, with 8 to 10 secondary axes, 5-20 cm long. Leaves 7 to 20 per branch; petioles 1.5-3 mm long; blades ovate to elliptic, 2-4.5 × 1-2.5 cm, base obtuse, apex abruptly cuspidate-acuminate, chartaceous, slightly scabrous above. Cymules axillary, with staminate flowers 5 to 20, pistillate flowers 1. Staminate flowers on pedicels 3-4.5 mm long; calyx lobes 6, biseriate, outer narrowly oblong, inner orbiculate; stamens 3, united. Pistillate flowers on pedicels 5-12 mm long, scabridulous; calyx lobes with narrow whitish margins. Capsules 4.5-5 mm in diameter, smooth; seeds 2.5-2.8 mm long, smooth or foveolate, reddish brown.

GENERAL DISTRIBUTION: Mexico, Central America, Cuba, Jamaica, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!.

NOTE: Anderson indicated that he had introduced this plant to the Botanic Garden from Trinidad. Caley and Guilding specimens (K) from St. Vincent are the only records.

Phyllanthus amarus Schum. & Thonn., Kongel. Danske Vidensk.-Selsk. Skr. **4:** 195. 1829.

Type: Africa, *Schumacher & Thonning s.n.* (holotype, C).
Syn.: *Phyllanthus swarzii* Kostel., Allg. Med.-Pharm. Fl. 1771. 1836. (Type: "P. niruri Sw.")

Annual herb, smooth, glabrous; main axis with scarious cataphylls and associated stipules; deciduous branchlets pinnatiform, to 12 cm long. Leaves 15 to 30 per branch; petioles 0.3-0.5 mm long; blades elliptic-oblong to obovate, 5-11 × 3-6 mm, base rounded, apex rounded to apiculate, membranous. Cymules bisexual, each with 1 staminate and 1 pistillate flower; pedicels 0.6-1.3 mm long, calyx lobes 5, acute or apiculate in pistillate flowers; stamens 3, connate in column. Capsules 1.9-2.1 mm in diameter, smooth, straw-colored; seeds trigonous, 0.9-1 mm long with 5 or 6 straight, parallel ribs, light brown.

GENERAL DISTRIBUTION: Circumtropical as a weed.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Antigua!, St. Eustatius!, Redonda!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAMES: Blan ék nwé, gwen anbafey blan.

Phyllanthus andersonii (as "anderssonii") Muell. Arg. *in* DC., Prodr. **15**(2): 395. 1866.

Type: "Caracas," collector uncertain (holotype, G-DC; IDC 2562. 2490: II. 2, photo!). Syn.: *Phyllanthus barbadensis* Urban, Symb. Antill. **3**: 287. 1902. (Lectotype: Barbados, *Eggers 7130* (A!).)

Shrub to 2 m tall, stems zigzag, sparsely pubescent; main axis without cataphylls; branchlets persistent, to 25 cm long, terminating in naked thyrses. Leaves distichous, with petioles 1-1.8 mm long; blades elliptic to ovate, 2.5-4.5 × 1.2-2.5 cm, base obtuse to cuneate, apex obtuse to subacute, margin entire, chartaceous, drying black. Cymules mostly unisexual; staminate flowers several, pistillate flowers 1 to 4, all pedicellate, calyx lobes 6, stamens 3, united in column. Capsules on pedicels 7-13 mm long, oblate, 3-lobed, 6-sulcate, 5-6 mm in diameter; seeds plano-convex, 2.7-3.3 mm long, pale brown, with irregular bands of slightly raised, transversely elongated, reddish brown cells.

GENERAL DISTRIBUTION: Endemic to Barbados.

NOTES: Webster (1958, p. 53) stated "the typification of this species is unfortunately fraught with difficulties." Mueller noted that the specimen (G) was sent by "Dr. Andersson" and was from "Caracas." Webster speculated that since Anderson was not known to have been in Venezuela the specimen may instead be a collection by Schomburgk from Barbados. Unfortunately, he speculated further that the species may be a relic of an ancient landmass called "Paria." A check of the microfiche of the Prodromus Herbarium reveals an annotation label stating "Phyll. andersoni, Caracas." I suspect that this specimen is another of the many collected by Alexander Anderson now in the Prodromus herbarium. Anderson did collect on Barbados and received additional specimens from the Governor, Lord Seaforth. Some of his plants were introductions to the St. Vincent Botanic Garden and others only herbarium vouchers sent to England. Unfortunately, no entry in Anderson's unpublished Hortus can be referred to this taxon.

Phyllanthus caribaeus Urban, Symb. Antill. **5**: 382. 1908.

Lectotype: Tobago, *Eggers 5733* (F).

Annual herb; main axis with setaceous, scarious cataphylls and scarious cataphyllary stipules; deciduous branchlets pinnatiform, to 7 cm long. Leaves 15 to 30 per branch; petioles 0.3-0.4 mm long; blades elliptic to ovate-oblong, 4-8 × 2-3.5 mm, tapering from base to apex, base rounded, apex obtuse. Cymules unisexual, pistillate flowers solitary, distal, staminate flowers several, proximal; staminate calyx lobes 5, suborbiculate, stamens 3, united below middle; pistillate calyx lobes oblong to obovate, obtuse, disk divided into 3, erect, linear segments. Capsules 2 mm in diameter, straw-colored; seeds 0.9 mm long, straw-colored, radially and tangentially with ca. 10, delicate, longitudinal striae and many fine transverse bars.

GENERAL DISTRIBUTION: Restricted to the Lesser Antilles and Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, St. Vincent!, Grenada!.

Phyllanthus caroliniensis Walter, Fl. Carol. 228. 1788.

Type: Walter Herb. *#83* (BM).

Herb to 30 cm tall; main axis without cataphylls, the stem leaves persistent; branchlets pinnatiform, to 6 cm long. Leaves with petioles 0.5-1 mm long; blades elliptic to obovate, 5-20 × 2-10 mm, base cuneate, apex obtuse or rounded, emarginate or apiculate, paler below; lower leaves of branchlets usually reduced, upper leaves elliptic, to 15 × 5 mm. Cymules borne in leaf axil, with 1 or 2 staminate and 1 or 2 pistillate flowers, pedicels to 1 mm long or lacking; staminate flowers with 5 calyx lobes, stamens 3, free; pistillate flowers with 6, linear to oblong calyx lobes. Capsules subsessile, 1.6-2 mm in diameter, smooth; seeds 0.7-1 mm long, verruculose, dull gray-brown.

GENERAL DISTRIBUTION: Temperate North America, Mexico, Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!.

NOTE: Webster (1956, p. 347) recognized *P. caroliniensis* ssp. *caroliniensis* citing collections from Martinique, and *P. caroliniensis* ssp. *guianensis* (Klotzsch) Webster var. *antillanus* (Muell. Arg.) Webster (Type: Martinique, *Sieber* Herb. Mart., Suppl. 10.) from the islands cited.

Phyllanthus debilis Klein ex Willd., Sp. Pl. **4:** 582. 1805.

Type: India, Feb. 1799, *Klein s.n.* (syntypes, B-W #17978; IDC 7440. 1299: I. 1-3, photos!).

Herb to 70 cm tall, stems usually angled and compressed; main axis with cataphylls and scarious cataphyllary stipules; deciduous branchlets pinnatiform, to 10 cm long, sharply compressed, smooth. Leaves 15 to 35 per branch; petioles 0.3-0.7 mm long; blades narrowly elliptic, 8-20 × 2.5-5 mm, base acute, apex acute, membranous. Cymules unisexual, staminate proximal, pistillate distal; staminate flowers with pedicels 0.5 mm long, stamens 3, connate in column; pistillate flowers with pedicels > 1.6 mm long, calyx lobes obovate, rounded, with broad, white, scarious margin, style spreading and appressed. Capsules oblate, 2-2.5 mm in diameter, reddish brown, smooth; seeds trigonous, 1-1.1 mm long, yellowish brown, with 6 or 7 straight, longitudinal ribs and many fine transverse striae on abaxial surface.

GENERAL DISTRIBUTION: Native to India and Ceylon but introduced elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!.

NOTE: Webster cited only two old collections from Guadeloupe, but he suspected this weedy species might spread, and to other islands. No recent collections have been seen.

Phyllanthus emblica L., Sp. Pl. **2:** 982. 1753.

Type: Unresolved.

Tree > 8 m tall; main axis with cataphylls; deciduous branchlets pinnatiform, > 25 cm long. Leaves to 100 per branch; petioles 0.3-0.7 mm long; blades linear-oblong, 12-20 × 2-5 mm, base rounded, apex obtuse to acute, margin thickened, chartaceous. Cymules unisexual or bisexual, aggregated in naked, cauliflorous thyrses; staminate flowers with pedicels 1-2.5 mm long, stamens 3, united in column; pistillate flowers subsessile. Capsules ovoid, 2.5-3 cm in diameter, pericarp yellow-green, fleshy, endocarp bony but explosively dehiscent into 3, two-valved cocci when pericarp is removed.

GENERAL DISTRIBUTION: Native of tropical Asia but introduced and cultivated elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Apparently now known from a single specimen tree in the botanical garden on Grenada.

COMMON NAME: Myrobalan.

Phyllanthus epiphyllanthus L., Sp. Pl. **2:** 981. 1753.

Lectotype: Hort. Cliff. 439.1. (BM).
Syn.: *Xylophylla epiphyllantha* (L.) Britton *in* Small, Florida Keys 76. 1913.

Shrubs or small trees to 3 m tall; main axis with numerous cataphylls, dark reddish brown; deciduous branchlets flattened as phylloclades, often on short shoots and aggregated in clusters, to 25 × 2.3 cm, variable in size and shape, linear to oblanceolate, straight or falcate. Cymules marginal with 1 to 3 pistillate and several to many staminate flowers on pedicels > 2.3 mm long, calyx lobes usually reddish, stamens 3, united in column. Capsules oblate and trigonous, 3.5-4 mm in diameter, smooth or tuberculate, reddish brown; seeds trigonous, > 2 mm long, smooth, dark red.

GENERAL DISTRIBUTION: Florida, Bahamas, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, Barbuda!, Antigua!, Guadeloupe!, La Désirade!, Marie Galante!, Martinique!, Barbados!.

COMMON NAMES: Mutton porridge, farine chaude, farine à zombi, langue à chat, herbe mal-tête, patacho, billbush.

Phyllanthus fraternus Webster, Contr. Gray Herb. **176:** 53. 1955.

Type: India, Oct. 1846, *Thomas Thompson s.n.* (holotype, K).

Annual herb to 40 cm tall, stems angular, but not conspicuously so; main axis with cataphylls and scarious cataphyllary stipules; deciduous branchlets pinnatiform, to 8 cm long, scabridulous. Leaves 10 to 30 per branch; petioles 0.3-0.6 mm long; blades elliptic-oblong, 6-11 × 3-5 mm, base cuneate to obtuse, apex rounded, membranous, glabrous. Cymules unisexual; staminate flowers on pedicels > 0.5 mm long, calyx lobes elliptic to obovate with obtuse apex, scarious, yellow, stamens 3, united in column; pistillate flowers with pedicels > 2 mm long, calyx lobes obovate to linear-spatulate with obtuse apex, scarious, disk in lacerated segments. Capsules oblate, > 2 mm in diameter, smooth, reddish brown; seeds > 1.1 mm long, yellowish brown, with 6 or 7, straight, longitudinal ribs and many fine transverse striae on abaxial surface.

GENERAL DISTRIBUTION: Native to India but introduced into Africa and the West Indies.

DISTRIBUTION IN LESSER ANTILLES: Known from two specimens from Barbados but not collected in recent years.

Phyllanthus megapodus Webster, Contr. Gray Herb. **176:** 62. 1955.

Type: Martinique, *Sieber* Fl. Martinique *396* (holotype, W).

Shrub or small tree to 5 m tall; main axis with cataphylls; deciduous branches bipinnatiform, to 40 cm long, secondary axes to 15 cm long. Leaves 15 to 25 per branch; petioles to 0.1 mm long; blades asymmetrically broadly oblong or obovate, 18-30 × 8-15 mm, base oblique, acute, apex rounded or apiculate, chartaceous. Cymules axillary on ultimate axes, staminate flowers 1 to 5, or with staminate and pistillate flowers mixed; pedicels to 5 mm long, calyx of staminate flowers 5-lobed, elliptic to obovate and spreading, stamens 3, connate in column; pistillate flowers on shorter pedicels, calyx lobes 5, stiffly erect around ovary, style fused in massive column higher than ovary. Complete capsule not known, valves to 5.5 mm long; immature seeds 3 mm long, with raised reddish dots.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Martinique!.

Phyllanthus mimosoides Sw., Prodr. 27. 1788; Fl. Ind. Occid. **2:** 1101. 1800. FIGURE 34.

Lectotype: "Antigua," *de Ponthieu s.n.* (G).

Shrub to 5 m tall, stems with terminal crown of leafy branches, apex ferruginous-tomentulose; main axis with cataphylls; deciduous branchlets bipinnatiform, to 70 cm long, secondary branches > 15 cm long. Leaves to 60 per branch, subsessile; blades asymmetrically oblong, often falcate, 5-11 × 2-4 mm, base oblique, apex obtuse to subtruncate and apiculate, commonly glaucous below. Cymules axillary on ultimate branches, proximal nodes with 1 or 2 staminate flowers, distal nodes either staminate or pistillate, pedicels 1-3.5 mm long, calyx lobes 5, stamens 3, fused in column; pistillate disk divided into fringed segments, styles free or shortly connate, spreading or reflexed. Capsules oblate, 4-5 mm in diameter; seeds trigonous, 1.5-2.5 mm long, light brown with reddish dots.

General distribution: Lesser Antilles, Trinidad.

Distribution in Lesser Antilles: Montserrat!, Guadeloupe!, Dominica!, Martinique!.

Common names: Bâtard de fougère, tamarind grand bois.

Note: Swartz's original record of this plant from Antigua is questionable, and the plant is probably from Dominica.

Phyllanthus niruri L., Sp. Pl. **2:** 981. 1753.

Lectotype: Herb. Cliff. 440, *Phyllanthus 2* (BM).
Syn.: *Phyllanthus lathyroides* sensu Stehlé & Quentin, Fl. Guadeloupe **2**(1): 50. 1938.

Herb to 50 cm tall, stems smooth, glabrous; main axis with cataphylls and linear-lanceolate, attenuate, cataphyllary stipules; deciduous branchlets pinnatiform, to 10 cm long. Leaves ca. 30 per branch; petioles 0.4-0.7 mm long; blades ovate or elliptic, 7-17 × 3-9 mm, base conspicuously oblique, apex acute, usually paler below. Proximal cymules with clustered staminate flowers, distal cymules with solitary pistillate flower; staminate flowers with pedicels 1.2-1.8 mm long, stamens 3, united 3/4 of their length; pistillate flowers with pedicels 2.5-4.5 mm long. Capsules oblate, to 3 mm in diameter, straw-colored, smooth; seeds 1.4-1.8 mm long, verruculose, dark gray to brown.

General distribution: Subspecies *niruri* is restricted to the West Indies. Subspecies *lathyroides* occurs from Mexico into South America.

Distribution in Lesser Antilles: Barbuda!, Antigua!, Guadeloupe!, Martinique!, Barbados!.

Phyllanthus ovatus Poiret *in* Lam., Encycl. **5:** 297. 1804.

Type: Martinique, collector unknown (holotype, P-LA; specimen not located on microfiche).

Shrub to 4 m tall; main axis with cataphylls; deciduous branches bipinnatiform, to 25 cm long, secondary axes to 15 cm long. Leaves ca. 20 per branch; petioles 0.5-1.5 mm long; blades elliptic to ovate, 3-5 × 2-3.5 cm, base acute to obtuse, apex acute, chartaceous. Cymules axillary, on ultimate axes, proximal staminate, distal bisexual; staminate flowers on pedicels 1.5-3.5 mm long, calyx lobes 5, reddish brown, stamens 3, connate; pistillate flowers subsessile or pedicels > 2.2 mm long in fruit, styles connate into thick, fleshy, urn-shaped column 3.5 mm high, exceeding ovary. Complete capsule not known, valves to 4 mm long; immature seeds 4 mm long with rows of dark reddish brown dots.

General distribution: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!.

Phyllanthus pentaphyllus C. Wright ex Griseb., Nachr. Königl. Ges. Wiss. Georg-Augusts-Univ. **1865:** 167. 1865.

Type: Cuba, *Wright 1938 p.p.* (holotype, GOET).

Syn.: *Phyllanthus polycladus* Urban, Symb. Antill. **1:** 333. 1899. (Lectotype: Puerto Rico, *Sintenis 3440* (NY).)

Phyllanthus polycladus Urban var. *guadeloupensis* Urban, Symb. Antill. **1:** 333. 1899. (Type: Guadeloupe, *Duss 2443.*)

Phyllanthus pentaphyllus C. Wright ex Griseb. ssp. *polycladus* (Urban) Webster, Contr. Gray Herb. **176:** 56. 1955.

Perennial herb from woody caudex; main axis with cataphylls and broad cataphyllary stipules, indurate, conspicuously auriculate at base, becoming dark reddish or black; deciduous branchlets pinnatiform, to 3 cm long. Leaves 5 to 20 per branch; petioles 0.1-0.5 mm long; blades elliptic or obovate to suborbiculate, 2.5-7.5 × 1.5-4 mm, base acute to rounded, apex obtuse to rounded but often apiculate, membranous to subcoriaceous. Cymules of staminate flowers in racemes of 5 to 15 flowers, stamens 2, connate; pistillate flowers solitary. Capsules oblate, 1.7-1.9 mm in diameter, smooth; seeds trigonous, 0.9-1 mm long, light brown with 6 to 8, slightly raised, longitudinal striae.

GENERAL DISTRIBUTION: West Indies.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!.

NOTE: Webster (1957, p. 347) distinguished ssp. *polycladus* on the basis of a wiry, spreading stem, subcoriaceous leaves, and characters of the relative length and width and venation. It is known from Puerto Rico, Anegada, and Guadeloupe, but there are no recent collections from the latter island. Some of Duss's indications of geographic origin within the West Indies are suspect.

Phyllanthus pulcher Wallich ex Muell. Arg., Linnaea **32:** 49. 1863.

Type: Malay peninsula, *Wallich 7908* (holotype, G).

Shrub to 1.5 m tall; main axis with cataphylls; deciduous branchlets pinnatiform, to 20 cm long, reddish brown hirsutulous. Leaves 15 to 30 per branch, basal ones much reduced, scalelike; petioles 0.8-1 mm long; blades oblong to elliptic, 18-28 × 8-14 mm, asymmetric at base, apex abruptly acute and scarious-apiculate. Cymules axillary, unisexual; staminate 2- to 5-flowered, pedicels 5-10 mm long, calyx lobes 4, ovate, lacerate, stamens 2, united; pistillate flowers distal, solitary on pedicels 16-24 mm long, calyx lobes 6, lacerate, carpels 3. Fruits unknown.

GENERAL DISTRIBUTION: Native to Malaysia; introduced to Trinidad and St. Vincent.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent.

Phyllanthus reticulatus Poiret *in* Lam., Encycl. **5:** 298. 1804.

Type: "Indes," collector unknown (holotype, P-LA; IDC 6207. **586:** I. 1, photo!).

Shrub or small tree to 4 m tall; main axis with cataphylls; deciduous branchlets pinnatiform, geniculate or zigzag, to 20 cm long. Leaves to 15 per branch; petioles 1.5-2.5 mm long; blades elliptic, 15-25 × 10-15 mm, base and apex obtuse to rounded, chartaceous. Cymules axillary, staminate flowers to 8 per cluster, pedicels 5-10 mm long, calyx lobes 5 or 6, imbricate in two series, oblong, entire, stamens 5; pistillate flowers usually solitary on pedicels 5-8 mm long, carpels 9 or 10. Fruits globose or oblate, 4-6 mm in diameter, fleshy, dark purplish.

GENERAL DISTRIBUTION: Widespread in tropical Asia and in West Africa.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent.

NOTE: Known only from several old collections presumably from cultivated plants.

Phyllanthus stipulatus (Raf.) Webster, Contr. Gray Herb. **176:** 53. 1955.

Basionym: *Moeroris stipulatus* Raf., Sylva Tellur. 91, 92. 1838.
Type: Jamaica, *Swartz s.n.* (holotype, S).
Syn.: *Phyllanthus diffusus* Klotzsch *in* Seemann, Bot. Voy. Herald 105. 1853. (Type: Panama, *Seemann 198* (holotype, K).)

Annual herb to 50 cm tall; main axis with cataphylls and broad, scarious cataphyllary stipules; deciduous branchlets pinnatiform, to 6 cm long. Leaves 15 to 30 per branch; petioles > 0.5 mm long; blades ovate, oblong, 3-10 × 2-4 mm, base obtuse or subtruncate, apex similar. Proximal cymules of 3 to 10 staminate flowers on pedicels > 0.7 mm long, stamens 3, connate; pistillate flowers solitary, distal, with pedicels > 2.5 mm long, disk angled or 5-lobed. Capsules oblate, 2.5 mm in diameter; seeds trigonous, 1-1.3 mm long with 10 to 12 longitudinal striae, brown.

GENERAL DISTRIBUTION: Widespread in tropical America.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Martinique!, St. Vincent!.

Phyllanthus subglomeratus Poiret *in* Lam., Encycl. **5:** 304. 1804.

Type: Martinique, collector unknown (holotype, P-LA; IDC 6207. 585: III. 7, photo!).

Shrub or small tree > 4 m tall; main axis with cataphylls; deciduous branchlets bipinnatiform, > 40 cm long, ultimate axes > 12 cm long. Leaves to 20 per branch; petioles > 1.5 cm long; blades elliptic or elliptic-lanceolate, 14-26 × 6-9 mm, base cuneate, apex acute to short-acuminate, membranous. Cymules axillary, bisexual with 1 pistillate flower and several staminate; staminate flowers on pedicels 5-6 mm long, calyx lobes 6, stamens 3, united in column; pistillate flowers on pedicels 1.5 mm long, hirsutulous, calyx lobes 6. Fruits unknown.

GENERAL DISTRIBUTION: Trinidad, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!.

COMMON NAMES: Envirage, bois à enivier.

NOTE: Label data on several specimens suggests this plant was used to stupefy fish in quiet streams.

Phyllanthus tenellus Roxb., Fl. Ind. ed. **1832:** 668. 1832.

Type: Botanic Garden Calcutta, *Wallich 7892 A* (holotype, K).

Annual herb > 50 cm tall; main axis with cataphylls; deciduous branchlets pinnatiform, > 15 cm long. Leaves to 20 per branch; petioles > 0.8 mm long; blades broadly elliptic to obovate, 10-20 × 5-9 mm, base acute or rounded, apex acute or obtuse, membranous. Cymules axillary, bisexual, proximal staminate, distal pistillate; staminate flowers on pedicels > 1.5 mm long, calyx lobes whitish with green midrib, stamens 5, filaments free; pistillate flowers on pedicels to 5 mm long. Capsules oblate, to 1.9 mm in diameter, smooth; seeds trigonous, to 0.9 mm long, light brown, densely covered with rounded processes.

GENERAL DISTRIBUTION: Native of the Mascarene islands; introduced and weedy in temperate and tropical areas of the New World.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, Grenada!.

Phyllanthus urinaria L., Sp. Pl. **2:** 982. 1753.

Type: Ceylon, Herb. Hermann (BM); three specimens exist from which a lectotype has not been selected.

Annual herb to 10 cm tall; main axis with cataphylls; deciduous branchlets pinnatiform, to 10 cm long. Leaves 20 to 35 per branch; petioles 0.3 mm long; blades linear-oblong to oblong-obovate, 8-25 × 2-6 mm, base obtuse, apex obtuse or mucronulate, margin hispidulous. Proximal nodes with 1 pistillate flower, distal nodes with cymules of 5 to 7 staminate flowers; staminate flowers on pedicels 0.5 mm long, stamens 3, connate; pistillate flowers subsessile, with ovary conspicuously bullate-papillate. Capsule oblate, to 2.2 mm in diameter, commonly tuberculate; seeds trigonous, to 1.2 mm long, brown with transverse ridges on back and sides and commonly with deep lateral pits.

GENERAL DISTRIBUTION: Native to tropical Asia but a weed throughout the tropics.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAME: Gwen anbafey awouj.

PLUKENETIA L.

Plukenetia L., Sp. Pl. **2:** 1192. 1753.

Monoecious lianas without stinging hairs. Leaves alternate, petiolate; blades simple, entire, palmately or pinnately veined, with 2 marginal glands at base of blade and 1 median at apex of petiole. Inflorescences axillary, narrowly paniculate; staminate flowers clustered, calyx lobes 4 or 5, apetalous, stamens 10 to 40, free, pistillode present; pistillate flowers single, calyx lobes 4 or 5, apetalous, ovary of 4 carpels, ovules 1 per locule, styles connate, much exceeding ovary, tips only free. Capsules with cocci smooth to carinate or winged; seeds globose to lenticular, smooth, ecarunculate.

TYPE: *Plukenetia volubilis* L.

A genus of 10 species of tropical America.

Plukenetia volubilis L., Sp. Pl. **2:** 1192. 1753. FIGURE 33.

Type: Plum., Nov. Pl. Amer. 47, *t. 13* (lower half). 1703.

Liana. Leaves with petioles 3-8 cm long; blades ovate, 7-13 × 5-12 cm, base truncate to subcordate, apex abruptly caudate-acuminate, basal glands ellipsoidal and marginal, with 3 palmate veins at base, glabrate above, hirsutulous below; stipules ovate-lanceolate, 1-1.5 mm long. Inflorescences > 20 cm long. Staminate flowers clustered at distal nodes, on pedicels 1-1.5 mm long, calyx lobes > 2.5 mm long, stamens 19 to 24; pistillate flowers proximal, few, on pedicels 10-15 mm long, calyx lobes to 2 mm long, ovary of 4 winged carpels, glabrous, stylar column to 2.5 cm long, stigmas thick. Capsules deeply 4-lobed, oblate, to 2 cm long, 3-5 cm broad, cocci thick and rigid; seeds lenticular, > 17 mm long, brown.

GENERAL DISTRIBUTION: Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, St. Lucia!.

RICHERIA M. Vahl

Richeria M. Vahl, Eclog. Amer. **1:** 30, *t. 4*. 1797.

Dioecious trees with copious clear latex. Leaves alternate, petiolate; blades simple, entire, coriaceous, glabrous or nearly so; stipules interpetiolar, free. Inflorescences axillary, racemose, often borne below leaves. Staminate flowers clustered, subsessile, calyx 4- or 5-parted, lobes imbricate, apetalous, stamens 5, disc glandular, pistillode present; pistillate flowers usually solitary, subsessile, calyx 4- or 5-parted, apetalous, ovary of 3 carpels, ovules 2 in each locule, styles 3. Capsules often fleshy but dehiscent into 3 valves; seeds usually 1 per fruit, sarcotesta fleshy, ecarunculate.

TYPE: *Richeria grandis* M. Vahl.

A genus of 7 species mostly of tropical South America.

Richeria grandis M. Vahl, Eclog. Amer. **1:** 30, *t. 4.* 1797. FIGURE 28.

Type: Montserrat, *Ryan s.n.* (C; possibly IDC 2201. 59: III. 1, photo!).

Tree > 20 m tall. Leaves with petioles 0.7-2 cm long; blades elliptic, obovate to oblanceolate, 6-20 × 5-17 cm, base cuneate to obtuse, apex rounded or emarginate, glabrous; stipules ovate, > 5 mm long, caducous. Staminate racemes > 12 cm long, pubescent, often interrupted, flowers subsessile; pistillate inflorescences > 3.5 cm long, flowers solitary, short-pedicellate, ovary glabrous. Capsules obovoid, 8-18 mm long, somewhat fleshy, generally only 1-seeded; seeds ovoid, 5-7 mm long, sarcotesta yellow-orange.

GENERAL DISTRIBUTION: Panama, Trinidad, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Montserrat!, Guadeloupe, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAMES: Bois bande, zabricot grandes feuilles, mang blanc, bois bande rouge.

NOTES: Alexander Anderson stated that this was an excellent tree to supply copious liquid for thirst in an emergency. The fruits often mature and dehisce on the tree. The three valves fall, leaving one seed pendulous from the papery-winged columella. The mature seeds are reported to be tomato-red to yellow and surrounded by an aril. Field notes indicate that this is more likely a fleshy sarcotesta.

RICINUS L.

Ricinus L., Sp. Pl. **2:** 1007. 1753.

Monoecious shrubs or trees wth clear sap. Leaves alternate, petiolate; blades simple, peltate, palmately lobed and serrate; stipulate. Inflorescence terminal, paniculate, staminate flowers in proximal cymules, distal cymules pistillate, bracts papery, glandular, calyx calyptrate and valvate, disk wanting, stamens numerous, filaments connate in fascicles; pistillate flowers pedicellate, ovary 3-carpellate, muricate, ovules 1 per locule, styles bifid. Capsules echinate, 3-lobed, explosively dehiscent; seeds elliptic, compressed, mottled, caruncululate.

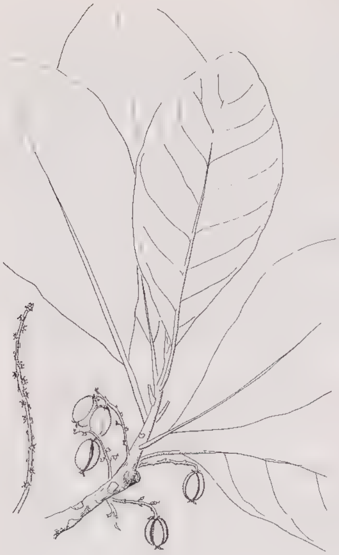
TYPE: *Ricinus communis* L.

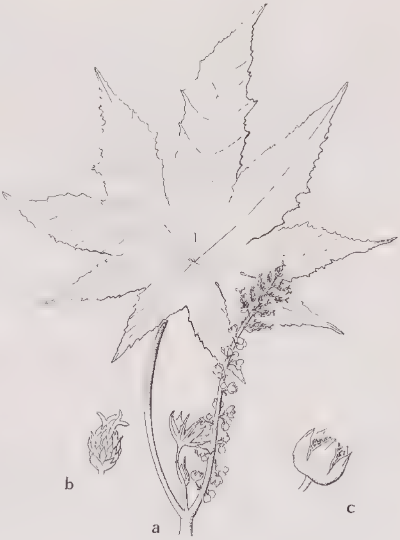
A single species native to Africa but commonly represented by many color forms.

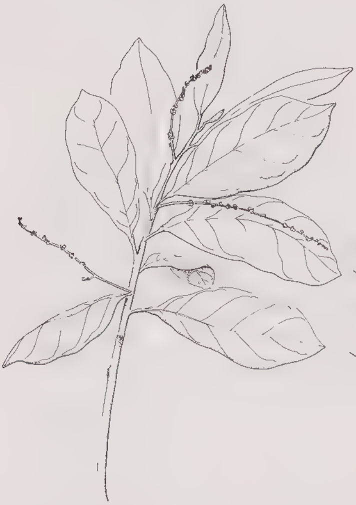
Ricinus communis L., Sp. Pl. **2:** 1007. 1753. FIGURE 29.

Lectotype: Herb. Cliff. 450, Ricinus 1 (BM).

Shrub or soft-wooded small tree > 5 m tall. Leaves with petioles > 20 cm long; blades ovate-orbiculate in outline, to 20 cm wide, mostly 7- to 9-lobed, lobes lanceolate, apex acuminate, margin irregularly serrate with







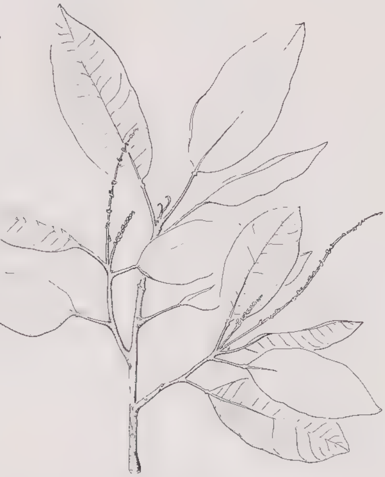


Figure 28 (upper left). *Richeria grandis*, × 0.3. Figure 29 (upper right). *Ricinus communis*: a, flowering branch, × 0.3; b, pistillate flower cluster, × 0.6; c, staminate flower cluster, × 0.6. Figure 30 (lower left). *Tetrorchidium rubrivenium*, × 0.3. Figure 31 (lower right). *Sapium caribaeum*, × 0.3.

glandular teeth; stipules lanceolate-ovate, to 1.5 cm long, caducous. Panicles to 20 cm long or more, staminate flowers clustered on pedicels to 1.5 cm long, calyx lobes conspicuous, white, to 9 mm long. Capsules ovoid, to 2 cm in diameter; seeds ellipsoidal, 9-20 × 4-9 mm, brown and mottled with black.

GENERAL DISTRIBUTION: Widely cultivated and naturalized in tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Barbuda!, Antigua!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Castor oil plant, carapate, ricin, gwen makwisti, pyé gwenn.

SAPIUM P. Browne

Sapium P. Browne, Civ. Nat. Hist. Jamaica 338. 1756.

Syn.: *Ateramnus* P. Browne, Civ. Nat. Hist. Jamaica 339. 1756. Neotype: *Sapium jamaicense* Sw.

Monoecious trees, with copious and toxic milky latex, glabrous. Leaves alternate, petiolate, these biglandular at apex just below junction with blade; blades simple; stipulate. Inflorescences terminal, spicate, staminate flowers clustered at distal nodes, pistillate solitary and long-pedicellate at proximal nodes, apetalous and without floral disk; staminate flowers with biglandular bract, calyx 2-lobed, stamens 2, pistillode wanting; pistillate flowers with biglandular bracts, calyx 2-to 3-lobed, ovary 3-carpellate, ovules 1 per locule, styles united below. Capsules globose, fleshy, dehiscent; seeds rounded, sarcotesta fleshy, often brightly colored, ecarunculate.

TYPE: *Sapium aucuparium* Jacq.

A neotropical genus of perhaps 80 species occurring in southern Mexico, Central and South America, and the West Indies. For additional information see E. Jablonski, Phytologia **16:** 393-435. 1968; G. L. Webster, Taxon **32:** 304-305. 1983.

NOTE: *Sapium sebiferum* (L.) Roxb. was introduced to Martinique in 1783 and was cultivated in the St. Vincent Botanic Garden by 1785. It may persist in the Lesser Antilles, but it is not represented by collections seen.

KEY TO THE SPECIES

Leaf tip flat	*S. caribaeum*
Leaf tip cucullate	*S. hippomane*

Sapium caribaeum Urban, Symb. Antill. **3:** 308. 1902. FIGURE 31.

Lectotype: Guadeloupe, *Duss 2932.*

Tree > 20 m tall. Leaves with petioles 1-3 cm long; blades lanceolate-oblong to elliptic-oblong, 7-20 × 3-6 cm, base obtuse to cuneate, apex obtuse to short-acuminate, flat, margin entire, ciliate-fimbriate; stipules broadly ovate, to 2 mm long. Spikes solitary, > 14 cm long, staminate flowers distal in ascending clusters of 3 to 6. Capsules orbicular, 2-lobed, 3.5 mm in diameter; seeds red, 3 mm long.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Bois lait, bird-lime, la glu.

Sapium hippomane G. Meyer, Prim. Fl. Esseq. 275. 1818.

Type: British Guiana, *Hostmann 314* (w).

Tree to 25 m tall. Leaves with petioles > 1.5 cm long; blades oblong, 7-15 × 4-7 cm, base rounded or cuneate, apex abruptly acute with reflexed cucullate tip, margin entire or minutely dentate; stipules ovate, > 1.5 mm long. Inflorescences solitary, > 12 cm long. Capsules globose, to 11 mm in diameter; seeds slightly flattened, 6 mm long, sarcotesta red.

GENERAL DISTRIBUTION: Trinidad, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Barbados!.

COMMON NAMES: Milk tree, poison tree.

SEBASTIANIA Sprengel

Sebastiania Sprengel, Neue Entd. **2:** 118. 1821.

Monoecious or dioecious herbs, shrubs, or trees. Leaves alternate or opposite, petiolate, these eglandular; blades simple, entire or serrulate; stipulate. Inflorescences terminal, axillary, or leaf-opposed, racemose; bracts with basal pair of glands; staminate flowers distal, calyx 3- to 5-lobed, stamens 3, filaments free or connate; pistillate flowers proximal, calyx 3-lobed, ovary 3-carpellate, ovules 1 per locule. Capsules with hornlike processes at each end, or these forming a ridge; seeds globose or cylindric, carunculate.

TYPE: *Sebastiania brasiliensis* Sprengel.

A genus of 90 species predominately in South America.

KEY TO THE SPECIES

Annual herbs; leaves alternate, subcordate at base; plants monoecious . . . . *S. corniculata*

Shrubs or small trees; leaves opposite, obtuse or narrowed at base; plants dioecious . . . . *S. hexaptera*

Sebastiania corniculata (M. Vahl) Muell. Arg. *in* DC., Prodr. **15**(2): 1168. 1866.

Basionym: *Tragia corniculata* M. Vahl, Eclog. Amer. **2:** 55, *t. 19.* 1798.
Type: Trinidad, *Ryan s.n.* (holotype, C; IDC 2201. **75:** III. 3, photo!); labeled *Ryan 17.*

Monoecious annual herb, stems to 50 cm long, hirsute or glabrate. Leaves alternate with petioles to 6 mm long; blades ovate-lanceolate, 1.5-4 × 1-2.5 cm, base obtuse or subcordate, apex acute or acuminate, margin serrate, hirsute; stipules minute. Inflorescences bisexual or unisexual; staminate flowers in 10- to 12-flowered spikes to 1 cm long, bracts 3-lobed; pistillate spikes of single flowers or these at base of staminate inflorescences, ovary glabrous or hirtellous, with 6 hornlike processes distally. Capsules truncate-globose, 3.5 mm long, 2-7 mm in diameter, distal processes > 1 mm long; seeds subcylindric, > 2.5 mm long, minutely pitted, caruncle stipitate.

GENERAL DISTRIBUTION: Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Grenada!.

COMMON NAMES: Ortie marron, z'ortie-jardin.

Sebastiania hexaptera Urban, Symb. Antill. **3:** 303. 1902. FIGURE 32.

Syntypes: Guadeloupe, *Duss 3239*; Martinique, *Duss 890.*

Dioecious shrub or small tree to 4 m tall. Leaves opposite with petioles 2-4 mm long; blades ovate-elliptic, 5-10 × 1.4-4.5 cm, base obtuse to acute, apex acuminate, margin minutely crenulate-serrate, glandular, chartaceous; stipules triangular, > 1 mm long. Staminate spikes 7-10 cm long, bracts 1-flowered, sepals 3; pistillate spikes 5 mm long, bracts 3-flowered. Capsules globose, 5 mm in diameter, 6-winged below; seeds obovoid, 3.5 mm long, brown, shiny, caruncle scutelliform.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!.

COMMON NAME: Bois fricassé.

TETRORCHIDIUM Poeppig

Tetrorchidium Poeppig, Nov. Gen. Sp. Pl. **3:** 23. 1841.

Dioecious trees or shrubs. Leaves alternate, petiolate; blades entire, simple; stipules glandular. Inflorescences axillary, spicate to subpaniculate; bracts eglandular, more or less similar in both inflorescence types; staminate flowers sessile, calyx lobes 3, imbricate (?), apetalous, stamens 3, anthers peltate, pistillode small; pistillate calyx 3-lobed, imbricate (?), apetalous, disk cupuliform or lobed, ovary of 2 or 3 carpels, ovules 1 per locule, styles short, stigmas bifid, appressed. Capsules thin-walled; seeds with fleshy sarcotesta, ecarunculate.

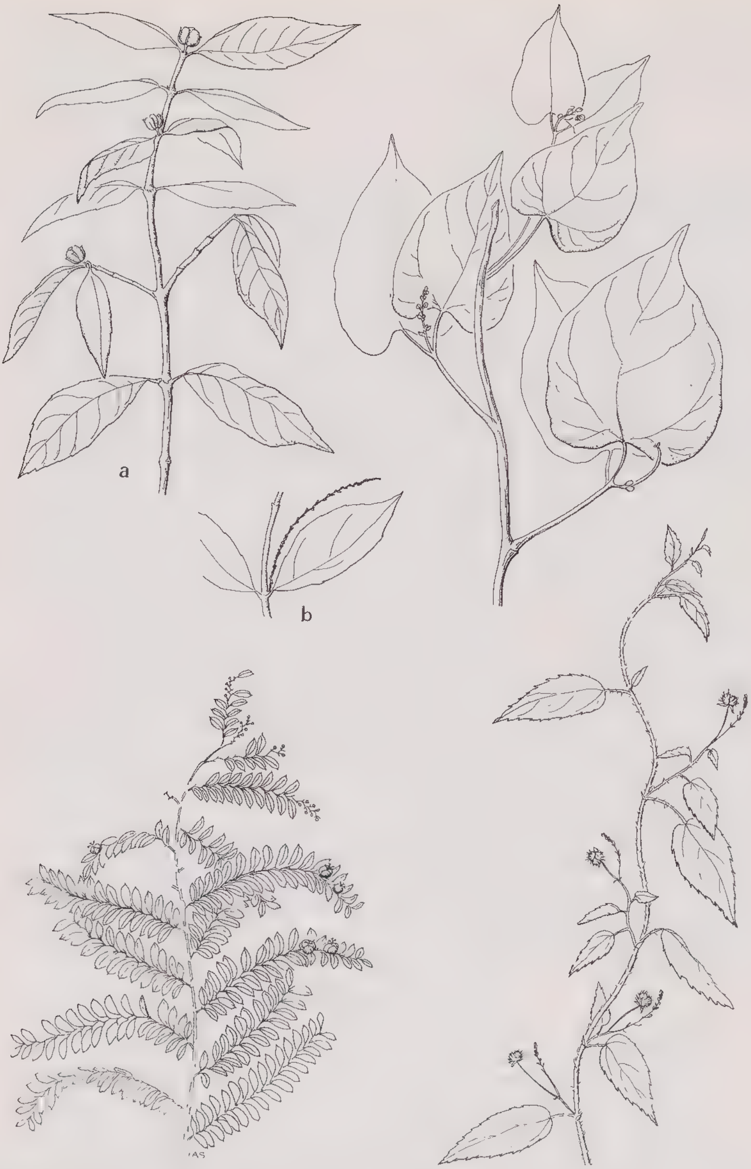


FIGURE 32 (upper left). *Sebastiania hexaptera*: a, pistillate branch, × 0.35; b, staminate branch, × 0.35. FIGURE 33 (upper right). *Plukenetia volubilis*, × 0.35. FIGURE 34 (lower left). *Phyllanthus mimosoides*, × 0.35. FIGURE 35 (lower right). *Tragia volubilis*, × 0.35.

Type: *Tetrorchidium rubrivenium* Poeppig.

A tropical genus of 16 to 20 species ranging from southern Mexico to South America, the West Indies, and West Africa. For additional information see J. Cuatrecasas, Brittonia **9:** 76-82. 1957.

Tetrorchidium rubrivenium Poeppig, Nov. Gen. Sp. Pl. **3:** 23, *t. 227.* 1841. Figure 30.

Type: Loc. cit. *t. 227.*

Tree > 12 m tall, stems glabrous. Leaves with petioles 0.5-2 cm long, with 2 orbicular glands near apex; blades obovate-oblong, 17-23 × 4-7 cm, base narrowed, apex obtusely acuminate, margin serrate or lightly dentate, membranous; stipules triangular. Inflorescences 8-18 cm long, staminate interrupted spikes or subpaniculate, pistillate racemose, > 6 cm long, rachis flattened, pubescent, sepals broadly triangular, puberulous, disk 3-lobed, ovary 2-celled. Capsules to 8 mm long; seeds rounded.

General distribution: Northern South America.

Distribution in Lesser Antilles: St. Vincent, known from but one collection, *H. H. & G. W. Smith s.n.* (GH!), made in 1890. Not recollected and possibly from a plant then cultivated in the Botanic Garden.

TRAGIA L.

Tragia L., Sp. Pl. **2:** 980. 1753.

Monoecious, perennial herbs from woody taproots, stems climbing, pubescence of stiff stinging hairs mixed with soft spreading hairs. Leaves alternate, petiolate; blades mostly cordate; stipulate. Inflorescences opposite leaves, proximal flowers pistillate, distal staminate, bracts eglandular, apetalous, calyx lobes 3 to 6, disk wanting; staminate flowers with stamens 2 to 6, filaments connate below, pistillode minute; pistillate flowers with subglobose ovary densely covered with stinging hairs, 3-carpellate, ovules 1 per locule, styles 3, spreading. Capsules lobed, explosively dehiscent; seeds smooth, brownish black, ecarunculate.

Lectotype: *Tragia volubilis* L.; vide J. K. Small *in* N. L. Britton & A. Brown, Ill. Fl. N. U. S. ed. 2, **2:** 458. 1913.

A genus of ca. 150 species of tropical and warm-temperate regions of both hemispheres.

Tragia volubilis L., Sp. Pl. **2:** 980. 1753. Figure 35.

Lectotype: LINN 1103.1.

Twining, slightly woody vine, stems to 4 m long, pubescent with stinging hairs. Leaves with petioles 1-3 cm long; blades oblong to ovate, 2-8 × 1-4 cm, base cordate, apex acute to acuminate, margin sharply serrate or dentate; stipules ovate-lanceolate. Racemes 3-7 cm long, pistillate flowers on elongating jointed pedicels to 2.5 cm long. Capsules oblate, 6-7 mm in diameter, deeply 3-lobed, pubescent; seeds oblongoid, 3 × 2 mm, pale brown mottled with red.

GENERAL DISTRIBUTION: Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Stinging nettle, stinging wiss, fireman, ortie brûlante, liane z'ortie, zóti.

BUXACEAE

by George Staples

BUXACEAE Dumort., Comment. Bot. 54. 1822 ('Buxacees').

Dioecious or monoecious evergreen shrubs (trees or herbs), without milky sap. Leaves alternate or opposite, simple; exstipulate. Inflorescence a spike, raceme, or head. Flowers regular, unisexual, bracteose; sepals 4 to 6, imbricate, shortly fused at base, free above; petals wanting; staminate flowers many, stamens 4 to 6(to many), filaments sometimes wanting, anthers large, bilocular, dehiscing by valves or longitudinal slits, rudimentary pistil sometimes present; pistillate flowers few or solitary, staminodes wanting, ovary superior, 3-locular, ovules 1 or 2 per locule, placentation axile, styles 3, terminal, free or shortly fused at base. Fruit a loculicidal capsule (or drupe), 3- to 6-seeded; seeds shiny, black, embryo straight, cotyledons flat, endosperm fleshy.

TYPE: *Buxus L.*

A small family including 4 to 6 genera and ca. 100 species that are widespread in the temperate, subtropical, and tropical regions of the world.

BUXUS L.

Buxus L., Sp. Pl. **2:** 983. 1753.

Syn.: *Tricera* Schreber, Gen. Pl. 630. 1791. (Type: *Tricera laevigata* (Sw.) Sw. (basionym: *Crantzia laevigata* Sw.).)

Monoecious evergreen shrubs or small trees. Leaves opposite, short-petiolate; blades entire, coriaceous. Inflorescences axillary or terminal, sessile or short-stalked heads with central pistillate flower subtended by several staminate flowers; bracts small, herbaceous or coriaceous. Staminate flowers with 4 sepals, 4 stamens, the anthers oblong, rudimentary ovary present; pistillate flowers with 6 sepals, staminodes wanting, styles 3, free or shortly fused, persisting in fruit, ovules pendulous. Capsules (2- or)3-horned, dehiscing explosively with pericarp layers forcing seeds out; seeds black, hard, carunculate.

TYPE: *Buxus sempervirens* L.

A genus comprising ca. 70 species in the northern hemisphere, southern and tropical Africa, and the West Indies. One center of diversity for the genus is the Greater Antilles according to Koehler (Feddes Repert. **96:** 663-675. 1985). A single species is endemic in the Lesser Antilles.

Buxus subcolumnaris Muell. Arg. *in* DC., Prodr. **16**(1): 14. 1869, p.p.; emend. Urban, Symb. Antill. **5:** 400. 1908. FIGURE 36.

Type: Martinique, *Sieber 208* (lectotype, G; isolectotype, GH!).

Syn.: *Buxus aquartiana* Rich. ex Baillon, Monogr. Bux. 69. 1859. (Type: Martinique, *Richard s.n.* (P).)

Tricera subcolumnaris (Muell. Arg.) Britton, Bull. Torrey Bot. Club **42:** 498. 1915.

Tricera citrifolia Willd. sensu Stehlé & Quentin, Fl. Guadeloupe **2**(1): 45. 1937.

Buxus laevigata (Sw.) Sprengel sensu Fournet, Fl. Ill. Phan. Guad. Mart. 1113. 1978.

Erect shrub or small tree to 2-4 m tall; branches slender, flattish, glabrous; stems striate-angulate, 3-4 mm in diameter. Leaves with petioles alate, 4-7 mm long; blades ovate-lanceolate to elliptic-lanceolate, 5-8(-11) × 2-5 cm, base obtuse to acute, decurrent, apex narrowly acuminate, margin entire, pinnately nerved with prominent intramarginal nerve 2-4 mm inside margin, coriaceous to thickly chartaceous, glabrous. Inflorescences axillary or lateral, corymbose, axis puberulent-pilose; bracts ovate, 1-2 mm long, mostly deciduous. Staminate flowers yellowish, pedicels 8-10 mm long, sepals oblong, 4-6 mm long, filaments 5-6 mm long, fleshy, flat, anthers oblong, recurved, ca. 1 mm long, creamy-white; pistillate flowers solitary, sessile, sepals 6, scale-like, persisting but not enlarging in fruit, styles filiform, 8-10 mm long, persisting and dividing lengthwise in fruit. Capsules 3-lobed, 10-12 mm long, greenish, with 6 recurved horns 5-8 mm long, formed from indurate styles; seeds 1 or 2 per locule, carinate, 4-5 × 3 mm, shiny, smooth, black, glabrous.

GENERAL DISTRIBUTION: Endemic to Martinique.

COMMON NAME: Petit buis.

NOTES: As originally described, *Buxus subcolumnaris* was a mixed concept based on plants from Cuba and Martinique. Urban subsequently emended Mueller Aargau's concept by restricting the epithet to the Martinique plant, and publishing *B. muelleriana*, based on *Wright 1920*, for the Cuban plant. Floristic treatments covering the Lesser Antilles have erroneously identified the Martinique plants as *Tricera citrifolia* Willd. (=*Buxus citrifolia* (Willd.) Sprengel), a Venezuelan species, or as *B. laevigata* (Sw.) Sprengel, a Jamaican endemic. As maintained by Koehler, and by Howard (J. Arnold Arbor. **44:** 96-100. 1963), *B. subcolumnaris* is endemic to the island of Martinique.

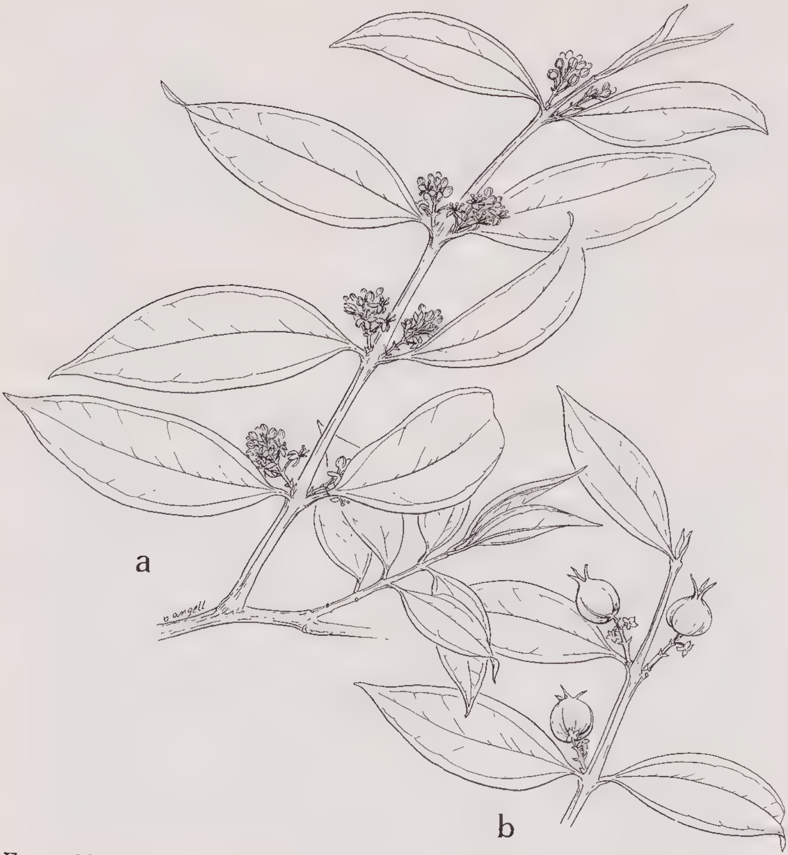


FIGURE 36. *Buxus subcolumnaris*: a, flowering branch, × 0.6; b, fruiting branch, × 0.6.

A fragmentary collection, *Ryan s.n.*, from Montserrat is clearly different from *B. subcolumnaris.* The leaf shape and floral morphology agree well with *B. bahamensis* Baker. This species has not been reported from the Lesser Antilles in the literature, but Koehler, at Humboldt-Universität, Berlin, suggested in a letter to Dr. Howard that this species might be found there. Koehler has nearly all the West Indian material out on loan, however, so it is not possible to determine whether *Buxus bahamensis* is native, cultivated, or established/escaped in the Lesser Antilles. Bahamian plants of *B. bahamensis* differ from *B. subcolumnaris* in their shrubby habit, smaller (2.5-4 × 1.5-2.5 cm), broad elliptic or obovate, thickly coriaceous leaves, with a distinctly apiculate-mucronulate apex, yellow anthers, and smaller capsules.

ANACARDIACEAE

by Allan J. Bornstein

ANACARDIACEAE Lindley, Intr. Nat. Syst. Bot. 127. 1830.

Trees or shrubs, commonly polygamodioecious, with acrid resinous or milky sap. Leaves alternate, rarely opposite; blades simple or compound (odd-pinnate in Lesser Antillean species), mostly entire; exstipulate. Inflorescences terminal or axillary, generally paniculate. Flowers perfect or unisexual by reduction, actinomorphic or slightly zygomorphic; perianth 3- to 5-merous, imbricate (petals often valvate in *Spondias*); sepals free or basally connate; petals normally free, exceeding the sepals; stamens as many or twice as many as petals, often functionally fewer in number and reduced to staminodes, inserted at base or margin of annular disc (if present), filaments free or less often basally connate, anthers longitudinally dehiscent, mostly versatile; ovary superior, usually unilocular (3- to 5-celled in *Spondias*), each locule with single functional ovule, style generally 1 (4 or 5 in *Spondias*), stigmas commonly 3. Fruits drupaceous.

TYPE: *Anacardium* L.

A family of approximately 70 genera and over 600 species, pantropical in distribution, but also occurring in more temperate regions. For more information see A. Engler *in* A. & C. DC., Monogr. Phan. **4:** 171-500. 1883; G. K. Brizicky, J. Arnold Arbor. **43:** 359-375. 1962; and D. Hou, Fl. Malesiana I, **8**(3): 395-548. 1978. An economically important family, especially for resins (source of tannins for the leather industry, lacquer, turpentine) and fruits (cashew, pistachio nuts, mango, hog plum, etc.). Several species are cultivated throughout the tropics for their edible fruits; others are equally well-known for their poisonous properties, often causing severe dermatitis.

INTRODUCED SPECIES

A recent collection from St. Martin (*Rollet 2038*) of *Schinus terebinthifolius* Raddi, the pink peppercorn or Brazil peppertree, is the first record of this species in the Lesser Antilles (see Figure 41). The species is native to Brazil, Paraguay, and Argentina, but is introduced elsewhere in the tropics and subtropics, especially Mexico and Central America, for its ornamental value. This dioecious shrub or small tree has pinnately compound leaves with a narrowly winged rachis and 5 to 9 sessile, elliptic to oblong-ovate, entire or serrulate leaflets. The white, 5-merous flowers are borne in axillary or terminal panicles or thyrses, and the fruits are red or orange-red drupes.

Key to the Genera

1. Leaves simple.
    2. Leaves obovate to elliptic, apically rounded to emarginate; stamens 7 to 10; fruit a small (<4 cm long) reniform drupe borne on an enlarged, pyriform hypocarp (=enlarged receptacle + pedicel)................ *Anacardium*
    2. Leaves oblong-lanceolate, apically acute; stamens 5; fruit a large (over 5 cm long), ovoid to subreniform drupe, the hypocarp unexpanded... *Mangifera*
1. Leaves pinnately compound.
    3. Stamens 3 to 5; ovary unilocular; fruit ≤ 1.5 cm long, inedible, the plants with poisonous latex.
        4. Flowers 3- or 4-merous; leaflets sinuate to spinose........ *Comocladia*
        4. Flowers 5-merous; leaflets entire......................... *Metopium*
    3. Stamens 8 to 10; ovary 3- to 5-locular; fruit ≥ 2.5 cm long, edible, the plants not poisonous.. *Spondias*

ANACARDIUM L.

Anacardium L., Sp. Pl. **1:** 383. 1753.

Trees or shrubs. Leaves alternate, simple, petiolate; blades entire, coriaceous, glabrous. Inflorescences terminal, occasionally also in upper leaf axils, paniculate or sometimes corymbiform. Flowers unisexual (male) or bisexual (plants polygamous), 5-merous; sepals erect; petals partly reflexed at maturity; disk none; stamens 7 to 10, distinctly unequal, 1 (rarely 2) more stout and longer, the remainder much reduced, occasionally sterile, filaments basally connate forming a short tube, anthers basifixed; ovary sessile, obovoid, unilocular and uniovulate, style lateral, stigma minute. Fruit a kidney-shaped, laterally compressed nut-like drupe borne on a fleshy, pyriform hypocarp.

TYPE: *Anacardium occidentale* L.

A genus of 10 species in tropical America, the cashew (*Anacardium occidentale* L.) being widely cultivated for its fruits. For additional information see J. D. Mitchell & S. A. Mori, Mem. New York Bot. Gard. **42:** 1-76. 1987.

Anacardium occidentale L., Sp. Pl. **1:** 383. 1753. FIGURE 37.

Lectotype: Sri Lanka, Herb. Hermann, no. 165, vol. **3:** 50. (BM); see Mitchell & Mori, loc. cit. p. 46.

Syn.: *Cassuvium pomiferum* Lam., Encycl. **1:** 22. 1783, nom. illeg. for *Anacardium occidentale* L. (Type: as for *Anacardium occidentale*; see Mitchell & Mori, loc. cit. p. 38.)

Anacardium occidentale L. var. *americanum* DC., Prodr. **2:** 62. 1825. (Lectotype: Jacq., Select. Stirp. Amer. Hist., *t. 181, fig. 35.* 1763; designated by Mitchell & Mori, loc. cit. p. 38.)

Tree to 12 m tall (mostly 5-7 m in the Lesser Antilles) with spreading branches, twigs glabrous. Leaves with petioles 0.5-2 cm long; blades obovate to elliptic, 7.5-15 × 4.5-12 cm, base cuneate to obtuse, apex rounded

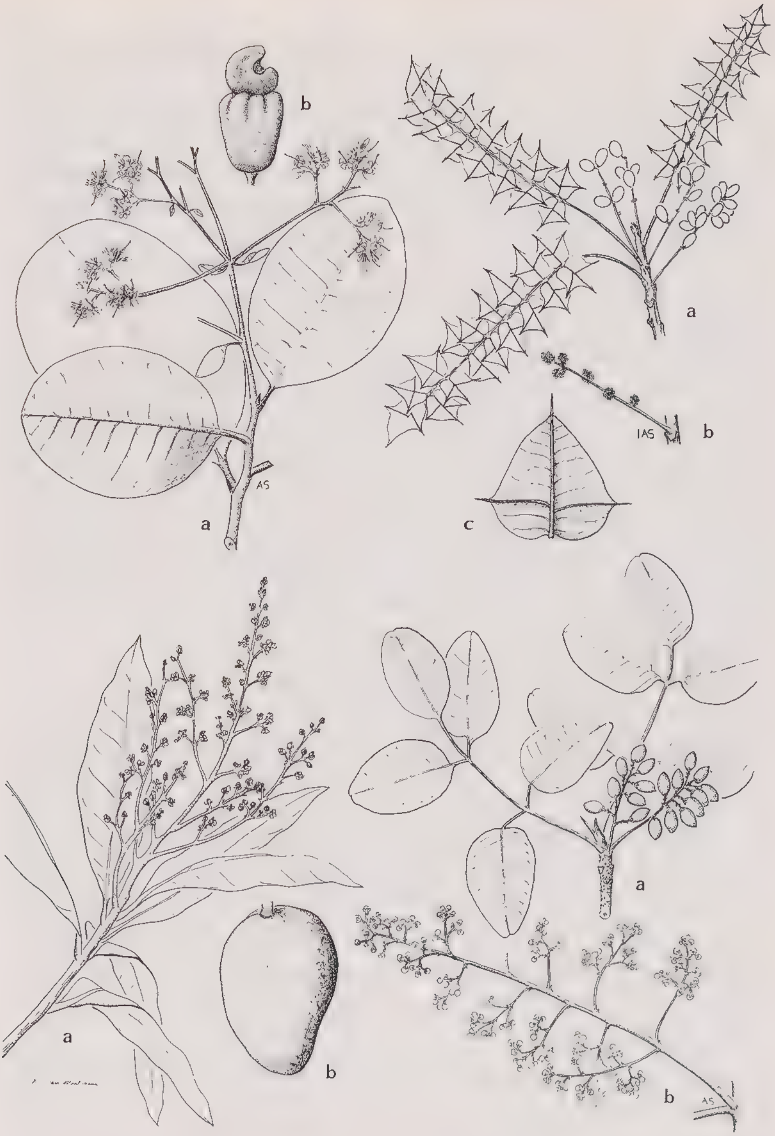


FIGURE 37 (upper left). *Anacardium occidentale*: a, flowering branch, × 0.3; b, fruit, × 0.3. FIGURE 38 (upper right). *Comocladia dodonaea*: a, fruiting branch, × 0.3; b, flowering branch, × 0.3; c, single leaflet, × 1. FIGURE 39 (lower left). *Mangifera indica*: a, flowering branch, × 0.3; b, fruit, × 0.2. FIGURE 40 (lower right). *Metopium toxiferum*: a, fruiting branch, × 0.3; b, inflorescence, × 0.3.

or slightly emarginate, lateral nerves 8 to 13 pairs. Panicles or corymbs 10-18 cm long, exceeding uppermost leaves, pubescent; bracts ovate to ovate-lanceolate, 3-5 mm long, acuminate, abaxially pubescent. Flowers crowded at ends of inflorescence branches; pedicels 2-5 mm long, pubescent; perianth pubescent, calyx lobes ovate-lanceolate, 3-5 mm long, petals linear-lanceolate, 7-15 mm long, cream-white with red stripes, turning red; stamens, including staminodes, if present, 2-12 mm long, generally longer in staminate vs. bisexual flowers; ovary with style 6-8.5 mm long. Fruits 1.9-2.7 × 1.6-2.0 cm, brown; hypocarp, when fresh, 3 to 4 times as large as drupe, red or yellow.

GENERAL DISTRIBUTION: Cultivated throughout the tropics; native to tropical America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla, St. Martin, St. Barts, Antigua!, Saba!, St. Eustatius, Montserrat!, Guadeloupe, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines, Grenada!, Barbados.

COMMON NAMES: Cashew, cashew-nut, noix-cajou, pomme-cajou, wild almond, neva.

NOTE: W. Meijer (Fl. Ceylon **4:** 8. 1983.) chose Rheede, Hort. Malab. **3:** 65, *t. 54.* 1682 as the lectotype, apparently unaware that specimens were extant. The choice of lectotype designated by Mitchell & Mori is to be followed as it is based on a specimen rather than an illustration.

COMOCLADIA P. Browne

Comocladia P. Browne, Civ. Nat. Hist. Jamaica 124. 1756.

Shrubs or small trees, few-branched; latex generally poisonous and turning black upon exposure. Leaves alternate, clustered near ends of branches, petiolate; blades odd-pinnate, leaflets 9 to many, sinuate to spinose. Inflorescences axillary, paniculate. Flowers unisexual or bisexual, small, crowded together in glomerules, 3- or 4-merous, commonly red-purple, glabrous; sepals free, paler in color than petals; petals ca. twice as long as sepals; stamens free, alternate with and shorter than petals, filaments distinct, subulate to filiform, anthers basifixed; disk intrastaminal, short-cupuliform, generally crenate; ovary sessile, unilocular, uniovulate, stigmas 3 or 4, sessile or on very short styles. Fruit an oblong-ellipsoid drupe, orange to red.

TYPE: *Comocladia pinnatifida* L.

A genus of 20 to 25 species in Mexico, Central America, and especially the West Indies.

KEY TO THE SPECIES

Leaflets spinose, 1-3 cm long, suborbiculate; flowers 3-merous...... *C. dodonaea*

Leaflets entire, 5-11 cm long, ovate to narrowly ovate; flowers 4-merous........ .... *C. undulata*

Comocladia dodonaea (L.) Urban, Symb. Antill. **4:** 360. 1910.
FIGURE 38.

Basionym: *Ilex dodonaea* L., Sp. Pl. **1:** 125. 1753.
Type: Plum., Nov. Pl. Amer. 20, *pl. 12.* 1703.
Syn.: *Comocladia tricuspidata* Lam., Mém. Acad. Sci. (Paris). 347. 1784. (Type: apparently based on Plum., Pl. Amer. *t. 118, fig. 1.* 1757, which is an elaboration of the earlier plate of 1703, but including vegetative material.)
Comocladia ilicifolia Sw., Prodr. 17. 1788; Fl. Ind. Occid. **1:** 75. 1797, nom. illegit. for *Ilex dodonaea* L.

Slender shrub or small tree, 1-5 m tall; bark light brown, slightly fissured, thin; twigs densely pilose-pubescent when young; latex of all parts poisonous (causing contact dermatitis). Leaves with petioles 1.3-1.9(-2.9) cm long, pilose-pubescent; blades 9.8-13.4 cm long, pilose-pubescent along rachis; leaflets 11 to 21, crowded and overlapping, sessile or nearly so, broadly ovate to suborbiculate, 1-2.4 × 0.8-1.9 cm, base cordate, apex acute, each with 3 to 5 sharp spines extending from midrib and major secondary veins, commonly wrinkled and reddish tinged, pilose beneath, especially along midrib, elsewhere glabrescent. Panicles shorter than subtending leaves, to 9.5 cm long, lateral branches extremely short, flowers appearing as if clustered (=glomerules), axes pilose pubescent; bracts ovate-lanceolate, to 0.75 mm long, apically acute to acuminate. Flowers 3-merous, red-purple, small; pedicels ca. 1 mm long; calyx lobes ovate to broadly ovate or suborbiculate, to 0.75 mm long, pale purple to red; petals ovate, oblong-ovate or suborbiculate, to 1.25 mm long, dark red to purple; stamens rarely over 0.75 mm long, smaller and sterile (?) in female flowers, filaments as long as ovoid anthers. Fruits ca. 1 cm long, red when ripe.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico and the Virgin Islands, and the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba, St. Eustatius, St. Kitts, Montserrat!, Guadeloupe!, Marie Galante!, St. Lucia, St. Vincent, the Grenadines!, Grenada.

COMMON NAMES: Bois de houx, houx-pays, hogwood, hollywood.

A second species, *Comocladia undulata* Urban (Symb. Antill. **5:** 401. 1908.) was described on the basis of a collection from Martinique (*Duss 175*; holotype at B, presumably destroyed). It is supposedly distinguished from *C. dodonaea* by the features given in the key above. Dr. David Young, currently working on a revision of *Comocladia*, has not encountered any material of this species and at present is uncertain of its status (pers. comm.). Therefore, it seems best to list this among the 'plantae incertae sedis' until further information becomes available.

Mangifera L., Sp. Pl. **1:** 200. 1753.

Trees. Leaves alternate, petiolate; blades simple, entire, coriaceous, glabrous. Inflorescences terminal, occasionally also in upper leaf axils, paniculate. Flowers unisexual or bisexual (plants polygamous), 4- or 5-merous; disk 5-lobed, variously shaped; stamens 5 to 8, inserted within disk, distinctly unequal, 1 (rarely 2) more stout and longer, the remainder much reduced and sterile, filaments free or less often connate, anthers dorsifixed; ovary sessile, unilocular and uniovulate, style eccentric or lateral, stigma minute. Fruit an ovoid or subreniform drupe, usually with fleshy mesocarp; seeds compressed.

TYPE: *Mangifera indica* L.

A genus of 35 to 40 species native to Indo-Malesia. One species (*Mangifera indica* L., the mango) is cultivated throughout the tropics for its fruits.

Mangifera indica L., Sp. Pl. **1:** 200. 1753. FIGURE 39.

Lectotype: Rheede, Hort. Malab. **4:** *t. 1, 2.* 1683; designated herein.

Large tree, 7-30 m tall (generally up to 20 m in the Lesser Antilles) with spreading branches, twigs glabrous. Leaves often crowded at branch apices; petioles (1.3-)2-5.7 cm long; blades lanceolate to oblong-lanceolate, 10.5-25(-30) × 3-6 cm, base acute or cuneate, apex acute to acuminate, less often blunt or long-acuminate, lateral nerves 15 to 25 pairs, reddish when young, dark green above at maturity. Panicles to 40 cm long, puberulous, densely flowered; bracts ovate to narrowly ovate, 1.5-2.5 mm long, acuminate, abaxially puberulent to pubescent. Flowers fragrant; pedicels 1-2.5 mm long, pubescent; perianth 5-merous, calyx lobes oblong-ovate, 1.5-2.0 mm long, puberulous to densely pubescent, petals elliptic to elliptic-ovate, 2.5-4.0 mm long, greenish white to yellow with 3 to 5 conspicuous, yellow to purplish, basally connate nerves on inner surface, glabrous or with a few hairs toward apex above nerves; disk short-cupular, 1-1.5 mm high, papillate; stamens normally 5, 1 (rarely 2) fertile, 2-3 mm long, the remainder sterile, to 1 mm long; ovary ovoid to subglobose, 1-1.5 mm in diameter, style 1.5-2 mm long. Fruits pendulous, various as to size, shape, and color, but usually 8-15 cm long and yellow to yellow-green with reddish markings.

GENERAL DISTRIBUTION: Native to Indo-Malesia, but widely cultivated and naturalized throughout the tropics.

DISTRIBUTION IN LESSER ANTILLES: Anguilla, St. Martin, St. Barts, Barbuda!, Antigua!, Saba, St. Eustatius, Montserrat!, Guadeloupe, Dominica!, Martinique!, St. Lucia!, St. Vincent, Grenada!, Barbados!.

COMMON NAMES: Mango, manguier, pied-mango.

NOTE: The type specimen of *Mangifera indica* was indicated by W. Meijer (Fl. Ceylon **4:** 6. 1983.) as LINN 276.1. However, according to Dr. Charles

Jarvis (pers. comm.), current curator of the Linnaean Herbarium and a noted authority on the typication of Linnaean names, this specimen was probably added to the collection after 1753. Therefore, it is not a syntype from which a lectotype can be chosen. Among the remaining syntypes that Linnaeus did list, no extant specimens are known. As such the choice of a lectotype is between the Bontius and Rheede illustrations. I have chosen the Rheede illustration as it is a better, more detailed representation of the features of this plant, at the same time conforming to the description as stated in Linnaeus' protologue.

METOPIUM P. Browne

Metopium P. Browne, Civ. Nat. Hist. Jamaica 177. 1756.

Trees or shrubs, usually dioecious. Leaves alternate, usually clustered near ends of branches, persistent, petiolate; blades odd-pinnate with 3 to 7 leaflets, entire and coriaceous. Inflorescences loose, ascending, axillary panicles. Flowers generally unisexual, 5-merous; sepals fused into cupulate calyx, lobes broadly ovate to semi-orbiculate, ciliate, persistent; petals twice as long as sepals, yellow-green; stamens 5, alternate with and shorter than petals, inserted at base of intrastaminal disk, reduced and sterile in female flowers, filaments distinct, anthers basifixed; ovary sessile, obovoid to subglobose, unilocular, uniovulate, style terminal, stigma 3-lobed. Fruit an ellipsoid to obovoid drupe, orange to scarlet when mature, glabrous and shining, three layers of fruit wall permanently fused; seed compressed, ± diamond-shaped in outline.

TYPE: *Metopium linnaei* Engl.

A genus of three species occurring in the West Indies, southern Florida, Belize, Guatemala, and the Yucatán peninsula of Mexico.

Metopium toxiferum (L.) Krug & Urban, Bot. Jahrb. Syst. **21:** 612. 1896. FIGURE 40.

Basionym: *Amyris toxifera* L., Syst. Nat. ed. 10, **2:** 1000. 1759.
Lectotype: Catesby, Nat. Hist. Carolina **1:** *t. 40.* 1730; designated herein.

Tree, occasionally shrubby, 2-8(-14?) m tall; bark reddish brown (orange within), splitting into large scales; branches wide-spreading. Leaves 12-25 cm long, glabrous; petioles mostly 3-10 cm long; petiolules 3-30 mm long; leaflets narrowly deltoid to ovate to elliptic-ovate, less often suborbiculate, 2.5-9.5(-12) × 2.3-7.2 cm, base obtuse to truncate, occasionally slightly cordate or oblique, apex acute, acuminate or obtuse, almost invariably retuse, margin conspicuously thickened, bright green, smooth, and shiny above. Inflorescences as long as or slightly longer than leaves, sparsely to densely puberulent; bracts narrowly ovate to ovate, 0.5-2.0 mm long, puberulent, especially along margins. Flowers with sepal lobes semi-orbiculate, to 1.5 mm long; petals elliptic to ovate, 2.5-3 mm long, obtuse, yellow-green;

stamens with filaments ca. as long as anthers; disk cupuliform. Fruits ellipsoid to oblong, 1-1.5 cm long, dull orange when ripe.

GENERAL DISTRIBUTION: Florida and the West Indies.

DISTRIBUTION IN LESSER ANTILLES: Anguilla, Dominica.

COMMON NAME: Poisonwood.

NOTE: Linnaeus cited two references in the protologue of *Amyris toxifera*; Hort. Cliff 486. and Catesby car. 1, *t. 40.* I have chosen the Catesby plate as lectotype of *Amyris toxifera* because no relevant material exists in either the Linnaean or Clifford Herbaria, (Charles Jarvis, pers. comm.). Therefore, it is the only choice for a type.

The description is based on material throughout the West Indies.

SPONDIAS L.

Spondias L., Sp. Pl. **1:** 371. 1753.

Trees. Leaves alternate, petiolate; blades odd-pinnate, with leaflets entire to subcrenate, each with a conspicuous intramarginal nerve. Inflorescences terminal and/or axillary, paniculate to thyrsiform, less often racemose, appearing before or with the leaves. Flowers bisexual or unisexual, 4- or more commonly 5-merous; calyx with small, spreading lobes, deciduous; corolla valvate, glabrous; stamens 8 to 10, filaments subulate to filiform, anthers dorsifixed; disk intrastaminal, short-cupuliform or round and flat, crenate to lobed; ovary sessile, 4- or 5-locular, each locule uniovulate, styles distinct, 4 or 5, stigmas spatulate. Fruit an ellipsoid to oblong-ovoid or subglobose drupe, orange to yellow or red-purple.

TYPE: *Spondias mombin* L.

A genus of 10 to 12 species, native to southeast Asia and tropical America. All of the species occurring in the Lesser Antilles are cultivated, to different degrees, for their fruits, and have become more or less naturalized.

KEY TO THE SPECIES

1. Inflorescences axillary, to 4(-9.5) cm long, few-flowered; flowers red to purple; calyx lobes imbricate; leaflets generally 2-4 cm long, subsessile; fruit red-purple (less often yellow) . . . . *S. purpurea*
1. Inflorescences terminal (occasionally also in the upper leaf axils in *S. mombin*), to 50 cm long, many-flowered; flowers white to greenish white; calyx lobes not imbricate; leaflets generally 5-12 cm long; fruit orange to yellow.
    2. Inflorescences appearing with the mature leaves, puberulent; fruit 3-4 cm long; leaflets entire . . . . *S. mombin*
    2. Inflorescences appearing before the leaves or with the young leaves only, glabrous; fruit 4-8(-10) cm long; leaflets entire to more commonly crenulate or serrulate . . . . *S. cytherea*

Spondias cytherea Sonn., Voy. Indes Orient. **3:** 242, *t. 123.* 1782.

Type: Tahiti (Cythere Island), *Commerson s.n.*, (P?).
Syn.: *Spondias dulcis* [Sol. ex] Parkinson, J. Voy. South Seas 39. 1773.
Spondias dulcis [Sol. ex] G. Forster, Pl. Esc. 33. 1786.
Spondias citherea Tussac, Fl. Antill. **3:** 95, *t. 28.* 1824, nom. illegit.

Tree to 25 m tall; bark gray to light reddish brown. Leaves 11-20 cm long, with 9 to 21 leaflets; petioles 9-15 cm long, glabrous; lateral petiolules to 0.75 cm long, terminal one 1-3 cm long; leaflets oblong-ovate to lanceolate, 5.5-15 × 1.7-5 cm, base nearly equilateral, obtuse to cuneate, apex acute to acuminate, margin entire to serrulate or crenulate, glabrous. Panicles terminal, appearing before leaves or with very young leaves only, to 35 cm long, lateral branches to 20 cm long, glabrous; bracts lanceolate to linear, to 1.5 mm long. Flowers cream to white; pedicels 1-3 mm long; calyx lobes triangular, to 0.5 mm long; petals oblong-ovate, 2-3 mm long; stamens 9 or 10, filaments to 2 mm long, anthers oblong-ovoid, to 0.75 mm long; disk short-cupuliform, crenate. Fruits ellipsoid to oblong, 4-10 × 3-8 cm, orange to yellow when ripe.

GENERAL DISTRIBUTION: Native to the Society Islands and presumably introduced from there thoughout Indo-Malesia. Also occurring, to a lesser extent, in cultivation in southern Florida, the West Indies, and northern South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Martinique!, St. Vincent!, Grenada!, Barbados.

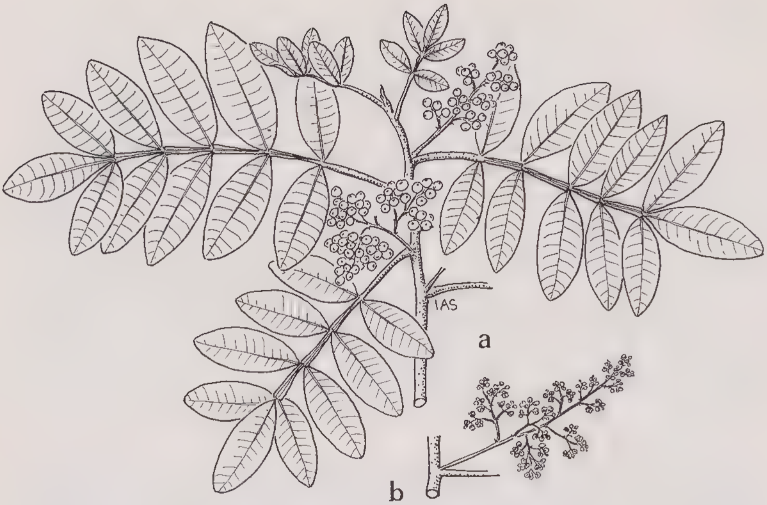
COMMON NAMES: Hog plum, yellow plum, pomme-cythère, prune-cythère.

NOTE: Very few collections of this species exist from the Lesser Antilles. Therefore, the description follows, in large part, that of Hou (1978). In light of the uncertainty with respect to Parkinson's names, we have elected to use the earliest unquestionable name, *Spondias cytherea* Sonn.

Spondias mombin L., Sp. Pl. **1:** 371. 1753.

Lectotype: Merian, Metam. Insect. Surin., *t. 13.* 1705; designated herein.
Syn.: *Spondias myrobalanus* L., Syst. Nat. ed. 10, **2:** 1036. 1759 (not Fl. Jamaic. 16. 1759. = Amoen. Acad. **5:** 379. 1760), nom. illegit. for *S. mombin* L.
Spondias lutea L., Sp. Pl. ed. 2, **1:** 613. 1762, nom. illegit. for *S. mombin* L.
Spondias pseudomyrobalanus Tussac, Fl. Antill. **4:** 97, *t. 33.* 1827. (Type: not determined.)
Spondias mombin Descourt., Fl. Méd. Antilles **6:** 61, *t. 397.* 1828 (non. L., or Descourt., Fl. Méd. Antilles **5:** 119, *t. 336.* 1827), nom. illegit.

Tree to 25 m tall; bark gray to light brown, armed with stout prickles. Leaves 12-40 cm long, with 9 to 19 leaflets; petioles 1.5-8.2 cm long, puberulous; lateral petiolules to 0.5 mm long, terminal one distinctly longer to 1.8 mm, puberulous; leaflets elliptic, ovate-elliptic or oblong-elliptic, (1.7-)3.2-10.7 × (1-)1.7-4.5 cm, base obliquely obtuse to cuneate, apex acuminate to abruptly acuminate, margin usually entire, puberulous on veins



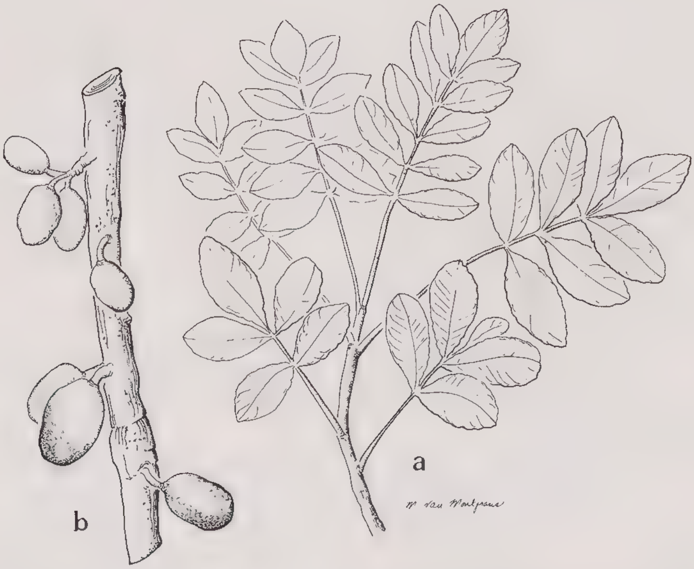


FIGURE 41 (upper). *Schinus terebinthifolius*: a, fruiting branch, × 0.5; b, inflorescence, × 0.5. FIGURE 42 (lower). *Spondias purpurea*: a, sterile branch, × 0.5; b, fruiting branch, × 0.5.

below and midrib above, glabrescent. Panicles terminal or occasionally in upper leaf axils, main axis to 45-50 cm long, lateral branches to 20 cm long, puberulous, glabrescent; bracts ovate to lanceolate, 0.5-1.5 mm long, acute. Flowers white, fragrant; pedicels 1-3 mm long; calyx lobes triangular, not imbricate in bud, to 0.5 mm long; petals oblong-lanceolate, 2-3.5 mm long; stamens 9 or 10, filaments to 2.5 mm long, anthers oblong-ovoid, to 1.25 mm long; disk short-cupuliform, crenate to lobed. Fruits ellipsoid to obovoid, 3-4 × 1.5-2.5 cm, orange to yellow when ripe.

GENERAL DISTRIBUTION: Native to tropical America from Mexico to South America, cultivated throughout the tropics of both hemispheres, in some cases becoming naturalized.

DISTRIBUTION IN LESSER ANTILLES: Anguilla, Antigua!, Saba!, St. Eustatius, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Mombin, prune mombin, prune myrobalan, hog plum.

NOTE: The fruits of *S. mombin* are used for jams, and on the island of Martinique for 'crème de mombin' liqueur.

Spondias purpurea L., Sp. Pl. ed. 2, **2:** 613. 1762, nom. nov. for *S. myrobalanus* L. (Fl. Jamaic. 16. 1759.). FIGURE 42.

Lectotype: Sloane, Voy. Jamaica, *t. 219, fig. 3-5.* 1725; designated herein. Typotype material in Herb. Sloane **7:** 66. (BM).

Syn.: *Spondias myrobalanus* L., Fl. Jamaic. 16. 1759 (not Syst. Nat. ed. 10, **2:** 1036. 1759), nom. illegit.

Spondias cirouella Tussac, Fl. Antill. **3:** 37, *t. 8.* 1824, excl. syn. *S. mombin* L. (Type: not determined.)

Spondias mombin Descourt., Fl. Méd. Antilles **5:** 119, *t. 336.* 1827 (non L. or Descourt., Fl. Méd. Antilles **6:** 61, *t. 397.* 1828), nom. illegit.

Tree to 10 m tall; bark grayish, smooth. Leaves 6.5-25 cm long, with 5 to 23 leaflets; petioles to 4.7 cm long, puberulous; petiolules extremely short, rarely exceeding 1 mm long, including terminal one, puberulous; leaflets oblong-elliptic to obovate, 1.8-4.3 × 0.8-1.9 cm, base obliquely cuneate, apex acute to acuminate, less often obtuse, margin entire to obscurely crenulate toward apex, puberulous above and below, especially along major veins, glabrescent. Inflorescences axillary, appearing before leaves, often on older naked branches, racemose to paniculate, to 4(-10) cm long, few-flowered, puberulous; bracts ovate-lanceolate, 0.5-1.5 mm long, acute. Flowers red-purple; pedicels 1-4 mm long; calyx lobes ovate to suborbiculate, apically obtuse, to 1 mm long, ciliate; petals oblong-ovate, 2-3 mm long; stamens 9 to 10(or 11), filaments to 2 mm long, anthers ovoid, to 0.5 mm long; disk short-cupuliform, crenate to lobed. Fruits oblong to obovoid, 2.5-4 × 1.5-2.5 cm, red-purple to purple or yellow (cultivar) when ripe.

GENERAL DISTRIBUTION: Native to tropical America, from Mexico through Central America and the West Indies to South America, now pantropical as a result of cultivation.

DISTRIBUTION IN LESSER ANTILLES: Anguilla, Barbuda!, Antigua!, St. Eustatius, Guadeloupe!, Martinique!, St. Lucia!, St. Vincent, Grenada!, Barbados.

COMMON NAMES: Prune d'Espagne, prune rouge, prune du chili, prune jaune, prune à te ter, mombin rouge, Spanish plum, red plum, chili plum.

NOTES: To be expected on all the islands in the Lesser Antilles. An unusual collection from St. Lucia (*Howard, Kellogg, & Slane 18991*) has extremely long inflorescences that are densely pubescent, the hairs stellate. The flowers agree rather well with other collections of *S. purpurea* except that they are quite yellow in color (at least when dry). This collection may correspond to the cultivar of this species which has yellow fruits, or perhaps it represents a new variety yet to be described.

An explanation of the rather complicated synonymy and typification of *Spondias mombin* and *Spondias purpurea* follows. *Spondias mombin* was described by Linnaeus citing several references. No syntype specimens are extant (Charles Jarvis, pers. comm.). Therefore, the choice of a lectotype is between Plumier, Nov. Pl. Amer., *t. 22* and Merian, Metam. Insect. Surin., *t. 13.* I have chosen the Merian plate because it better illustrates the features of the plant while conforming to the Linnaean protologue.

For *Spondias myrobalanus* L., Syst. Nat. ed. 10, **2:** 1036. 1759 (non Fl. Jamaic. 16. 1759 = Amoen. Acad. **5:** 379. 1760), the only reference cited by Linnaeus is Browne, Civ. Hist. Nat. Jamaica 229, n. 2., which would therefore be the type. However, Browne cites *S. mombin* L. in synonymy, hence the type of *S. myrobalanus* is the type of *S. mombin*, making *S. myrobalanus* an illegitimate name.

For *Spondias lutea* L., Sp. Pl. ed. 2, **1:** 613. 1762, the whole of the protologue of *S. mombin* is cited in synonymy, including the type, which makes *S. lutea* a superfluous, illegitimate name.

Spondias purpurea L., Sp. Pl. ed. 2, **1:** 613. 1762, is apparently a nomen novum for *S. myrobalanus* L., Fl. Jamaic. 16. [Dec.] 1759 (= *Amoen. Acad.* **5:** 379. 1760), which is an illegitimate later homonym of *S. myrobalanus* L., Syst. Nat. ed. 10, **2:** 1036. [May-June] 1759. No syntype specimens are extant and I have chosen the Sloane illustration as the lectotype. It is the only illustration among the available syntypes and a typotype specimen does exist.

CYRILLACEAE

by Allan J. Bornstein

CYRILLACEAE Endl., Ench. Bot. 578. 1841 ('Cyrilleae').

Shrubs or small trees. Leaves alternate, petiolate; blades simple, entire, glabrous; exstipulate. Inflorescences terminal or axillary, racemose; pedicels immediately subtended by a bract, and with 2 bracteoles borne near to or above middle. Flowers regular, perfect; sepals 5, rarely more, imbricate, persistent; petals as many as sepals, distinct or slightly connate at base, white to pinkish white, deciduous; stamens 5 or 10, filaments free, terete or petaloid toward base, anthers longitudinally dehiscent, versatile; ovary superior, 2- to 5-locular, each locule with 1 to 4 ovules, style short and simple, stigmas 2 to 5. Fruits dry, indehiscent, ± globose or winged, often lacking seeds; seeds without seed coats.

TYPE: *Cyrilla* Garden ex L.

A family of 3 genera and 14 species, occurring in the southeastern United States, the West Indies, southern Mexico to northern Central America, and northern South America. Two of the genera are monotypic (*Cyrilla* and *Cliftonia*), the remaining species included within *Purdiaea*. Only *Cyrilla* occurs in the Lesser Antilles. For more information, see J. L. Thomas, Contr. Gray Herb. **186:** 1-114. 1960 and J. Arnold Arbor. **42:** 96-106. 1961.

CYRILLA Garden ex L.

Cyrilla Garden ex L., Mant. Pl. **1:** 5. 1767.

Characters as for the family but with 5 stamens, the filaments terete; usually only 3 ovules per locule; fruit 2- or 3-sulcate, not winged.

TYPE: *Cyrilla racemiflora* L.

A monotypic genus occurring in the southeastern United States, southern Mexico, Belize, Panama, the West Indies, and northern South America.

Cyrilla racemiflora L., Mant. Pl. **1:** 50. 1767. FIGURE 43.

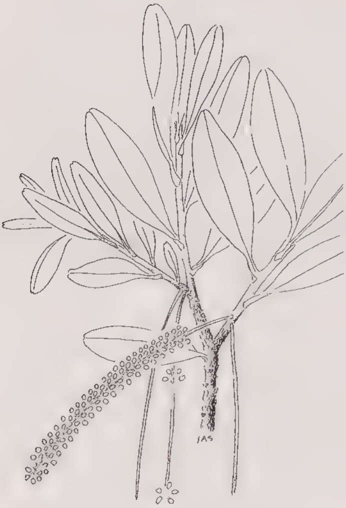
Syntypes: LINN 272.1 and 272.2.

Syn.: *Itea cyrilla* Sw., Prodr. 50. 1788; Fl. Ind. Occid. **1:** 506. 1797, nom. illegit. for *Cyrilla racemiflora* L.

Cyrilla antillana Michaux, Fl. Bor.-Amer. **1:** 158. 1803. (Type: presumably from Jamaica, specimen not cited; no apparent collection in the Michaux herbarium.)

Cyrilla perrottetii Briq., Annuaire Conserv. Jard. Bot. Genève **4:** 232. 1900. (Type: Guadeloupe, *Perrottet s.n.* (holotype, G-DEL).)

Shrub or small tree to 25 m tall (generally less than 15 m in the Lesser Antilles), often reproducing vegetatively from root sprouts, forming dense



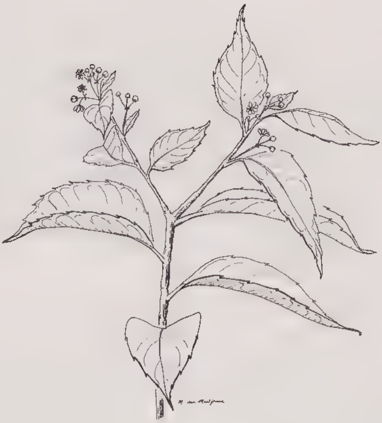


FIGURE 43 (left). *Cyrilla racemiflora*: flowering branch, × 0.3. FIGURE 44 (right). *Ilex macfadyenii*: flowering branch, × 0.3.

thickets; bark gray to brown, becoming thick and spongy with age. Leaves commonly clustered at ends of branches, with petioles to 1 cm long; blades obovate, oblong-obovate, oblanceolate, or oblong-elliptic, 2-8.7 × 1-3 cm, base attenuate-cuneate, apex acute to obtuse, often retuse, midrib prominent beneath, lateral nerves freely branching to form a dense reticulum. Racemes axillary, occurring at summit of twigs of previous season, 6.2-16.3 cm long, erect or pendulous, many-flowered; bracts lanceolate, to 8 mm long, persistent; bracteoles 2, borne on pedicel, alternate or opposite, lanceolate, to 2 mm long, persistent. Flowers white to pinkish white, fragrant; pedicels 2-3 mm long; sepals 5, ovate-lanceolate to deltoid, 0.5-1.5 mm long, apex acute to acuminate; petals oblong-lanceolate to elliptic, 2-2.5 mm long, apex acute to obtuse; stamens antisepalous, filaments subulate, to 1.8 mm long, anthers ovoid; ovary sessile on short glandular disk, ovoid to subglobose, 2- or 3-locular, stigma lobes equal to number of locules. Fruits ovoid to globose, ca. 2 mm long, longitudinally 2- or 3-sulcate, reddish orange to yellow.

GENERAL DISTRIBUTION: As for the genus.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, St. Vincent!.

COMMON NAMES: Pigeonberry, bois couché, olivier-montagne.

NOTES: An extremely variable species with respect to leaf size and shape, the numerous variations often having been described previously as distinct species. Thomas (1960) discussed this variation in detail, concluding that no obvious discontinuities exist and that a single species should be recognized. His interpretation is followed here. Apparently, there is a correlation of increasing leaf size with increasing moisture and shade.

The name *Itea cyrilla* is often credited as being published by L'Héritier in 1785 (Stirp. Nov. **1:** 137. "1785"). In fact, fascicle 6 of this volume, which includes the page in question, was published in 1791. Therefore, Swartz's publication of this name, although itself illegitimate, precludes the use of *Itea cyrilla* by L'Héritier (see Art. 64.1, Note 1 of the ICBN).

AQUIFOLIACEAE

by Allan J. Bornstein

AQUIFOLIACEAE Bartling, Ord. Nat. Pl. 228, 376. 1830.

Trees or shrubs, commonly dioecious, less often polygamodioecious, with watery sap. Leaves alternate (rarely opposite), petiolate; blades simple; exstipulate or stipules minute and caducous. Inflorescences axillary, fasciculate or solitary, cymose, pedunculate or less often sessile. Flowers small, regular, unisexual or occasionally bisexual, generally 4- to 6-merous, sometimes more; calyx connate at base, imbricate, persistent; petals usually united at base to form a rotate corolla, or free, imbricate, rarely valvate, deciduous; stamens alternipetalous, filaments usually adnate to very base of corolla, subulate, shorter than petals, anthers typically bithecate, dehiscent by longitudinal slits; disk absent; ovary superior, sessile, 2- to 8-locular (rarely more), ovules 1 (rarely 2) in each cell, pendulous, style short or none, stigma capitate or discoid, with as many lobes as locules. Fruits drupaceous, usually with 4 to 8, 1-seeded pyrenes; seeds with small embryo and much endosperm.

TYPE: *Aquifolium* Miller, nom. illegit. = *Ilex* L.

A tropical and temperate family of three or four genera and perhaps 400 species, the vast majority of which are referable to the genus *Ilex*. For more information see T. Loesener, Nova Acta Acad. Caes. Leop.-Carol. German. Nat. Cur. **78:** 1-598. 1901; and G. K. Brizicky, J. Arnold Arbor. **45:** 227-234. 1964.

ILEX L.

Ilex L., Sp. Pl. **1:** 125. 1753.

Trees or shrubs, usually dioecious but occasionally with some flowers perfect (not in our species). Leaves alternate; blades entire to serrate or dentate, sometimes spinose-dentate, membranous to coriaceous, persistent or deciduous; stipules minute, caducous. Inflorescences solitary or fascicled, 1 to many-flowered dichasia. Flowers unisexual by abortion, 4- to 7-merous, fragrant; calyx small, basally connate, imbricate, persistent; petals connate at base to form a rotate corolla, imbricate, white to yellow, deciduous; stamens as long as corolla in male flowers, shorter and sterile in female flowers, filaments adnate to base of corolla, anthers ovoid to ellipsoid, introrse, dorsifixed; ovary sessile, 4- to 8-locular, rudimentary in male flowers, style generally wanting, stigma capitate or discoid, persistent in fruit. Fruits subglobose to ellipsoid, berrylike, containing 4 to 8 hard, 1-seeded pyrenes, these smooth, ribbed, or striate.

LECTOTYPE: *Ilex aquifolium* L. (see N. L. Britton, N. Amer. Trees 621. 1908). Incorrectly listed in the ING as N. L. Britton and A. Brown, Ill. Fl. N. U.S. ed. 2, **2:** 486. 1913.

A pantropical genus of approximately 300 to 400 species with major centers of distribution in eastern Asia and South America. The genus as represented in the New World tropics, and especially the West Indies, is sorely in need of a monographer. The account given below is a conservative one in that the many relevant varieties previously described on the basis of Lesser Antillean material have been reduced to synonymy under their respective species.

INTRODUCED OR RECENTLY ESTABLISHED SPECIES

A recent collection from Barbuda (*Rich s.n.*, in 1980), is apparently the first record of *Ilex cassine* L. in the Lesser Antilles. This species has a normal distribution from the southeastern United States to the northern Bahamas and Cuba. It is not apparent whether or not the Barbuda collection is from a cultivated specimen, but this species has been cultivated in other areas for its attractive foliage and fruits.

KEY TO THE SPECIES

1. Flowers 4-merous, rarely 5-parted.
    2. Leaves punctate beneath, margin serrulate, blades ovate, elliptic, or suborbiculate; fruits 3-4 mm in dia. . . . . *I. dioica*
    2. Leaves epunctate beneath, margin crenulate, blades oblong or oblong-obovate; fruits 5-7.5 mm in dia. . . . . *I. nitida*
1. Flowers 5- to 7-merous.
    3. Leaves serrate, generally long-acuminate, membranous to subcoriaceous; inflorescences usually solitary in leaf axils . . . . *I. macfadyenii*
    4. Leaves entire, generally rounded, retuse, or short-acuminate, coriaceous; inflorescences usually fasciculate in leaf axils . . . . *I. sideroxyloides*

NOTES: There is, in general, a correlation between the number of flowers in a given inflorescence and the sex of the flowers. In short, the staminate inflorescences are usually several-flowered (3 or more) while the pistillate inflorescences are often reduced to a single flower from the basic dichasium. In some species, such as *I. nitida*, this distinction is quite apparent.

In addition, in some cases it appears as though the "fasciculate" inflorescence becomes "solitary and axillary" in fruit upon expansion of the reduced stem on which the basic dichasium is borne. This change in appearance from flower to fruit can cause some problems in identification.

Ilex dioica (M. Vahl) Griseb., Fl. Brit. W. Indian Is. 147. 1859, excl. descr. and specimens cited from Jamaica.

Basionym: *Prinos dioicus* M. Vahl, Eclog. Amer. **2:** 25, *t. 14.* 1798.

Type: Montserrat, *Ryan s.n.* (holotype, C, photo at A!; IDC 2201. 58: II. 6, photo!.)

Syn.: *Ilex dioica* (M. Vahl) Griseb. var. *gracilior* Loes. *in* Urban, Bot. Jahrb. Syst. **15:** 320. 1892. (Type: St. Vincent, *H. H. Smith & G. W. Smith 1563*, (holotype, B, presumably destroyed); actual collection number specified in Nova Acta Acad. Caes. Leop.-Carol. German Nat. Cur. **78:** 362. 1901.)

Shrub or small tree to 8 m tall, glabrous throughout. Leaves with petioles 4-14 mm long; blades ovate, elliptic, or suborbiculate, 5.2-13.4 × 3.4-7.4 cm, base rounded to obtuse to cuneate-obtuse, apex abruptly acute to short-acuminate, margin obscurely and remotely serrulate, rarely entire, ± revolute, coriaceous, punctate beneath, the dots small, golden-brown to black when dry. Inflorescences fasciculate, staminate usually 3-flowered, pistillate 1-flowered. Flowers 4-merous; calyx patelliform, lobes to 1 mm long; petals elliptic to oblong, 2-3 mm long, apex rounded, white or cream-colored; stamens to 3 mm long; ovary ovoid, stigmas discoid. Fruits subglobose to globose, 3-4 mm in diameter, dark purple; pyrenes 4, slightly striate.

GENERAL DISTRIBUTION: Apparently restricted to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Nevis!, Montserrat!, Guadeloupe!, Martinique!, St. Vincent, Grenada!.

COMMON NAME: Citronnier-montage.

NOTES: The combination *Ilex dioica* (M. Vahl) Maxim. (Mém. Acad. Imp. Sci. Saint Pétersbourg, Sér. 7, **29**(3): 27. 1881) is often cited for this species. Despite Grisebach's erroneous concept of this taxon, he nevertheless included the type in his circumscription, citing *Prinos dioicus* M. Vahl in synonymy. Therefore, the correct citation is that of Grisebach excluding the description and the material from Jamaica (referable to *Ilex nitida*). This species can be distinguished from *Ilex nitida*, which it superficially resembles, as indicated in the following table:

	I. nitida	I. dioica
Habit	Tree to 20 m	Shrub or small tree to 8 m
Leaf markings	Epunctate	Punctate beneath
Leaf margin	Crenulate	Serrulate
Leaf shape	Obovate or oblong-obovate	Ovate to suborbiculate
Fruit size	5-7.5 mm in dia.	3-4 in dia.

Ilex macfadyenii (Walp.) Rehder, J. Arnold Arbor. **3:** 215. 1923.

FIGURE 44.

Basionym: *Prinos macfadyenii* Walp., Repert. Bot. Syst. **1:** 541. 1842, nom. nov. for *Prinos lanceolatus* Macfad.

Type: Jamaica, St. Andrews Parish, Hardware Hill Gap, presumably a Macfadyen collection, location unknown.

Syn.: *Prinos montanus* Sw., Prodr. 58. 1788; Fl. Ind. Occid. **1:** 622. 1797. (Type: Jamaica, presumably a Swartz collection at S.)

Prinos lanceolatus Macfad., Fl. Jamaica 206. 1837, not Hill (1770).

Ilex montana (Sw.) Griseb., Fl. Brit. W. Indian Is. 147. 1859, not Torrey & A. Gray ex A. Gray (1848).

Ilex montana (Sw.) Griseb. var. *lanceolatus* Griseb., Fl. Brit. W. Indian Is. 147. 1859, based on *Prinos lanceolatus* Macfad.

Ilex montana (Sw.) Griseb. var. *ovata* Griseb., Fl. Brit. W. Indian Is. 147. 1859. (Type: Dominica, *Imray s.n.* (holotype, K or GOET).)

Ilex montana (Sw.) Griseb. var. *herminieri* Loes. *in* Urban, Bot. Jahrb. Syst. **15:** 314. 1892. (Type: Guadeloupe, *L'Herminier s.n.* (holotype, G).)

Ilex montana (Sw.) Griseb. var. *occidentalis* Loes. *in* Urban, Bot. Jahrb. Syst. **15:** 313. 1892. (Type: several syntypes cited.)

Ilex montana (Sw.) Griseb. var. *orientalis* Loes. *in* Urban, Bot. Jahrb. Syst. **15:** 313. 1892. (Type: several syntypes cited.)

Ilex macfadyenii (Walp.) Rehder var. *caribaea* Stehlé & Quentin, Fl. Guadeloupe **2**(1): 175. 1938. (Type: Guadeloupe, *Stehlé 875* (holotype, P).)

Ilex macfadyenii (Walp.) Rehder var. *occidentalis* (Loes.) Mosc., Cat. Fl. Domingensis 331. 1943.

Shrub or small tree to 5 m tall; bark gray to dark brown, twigs glabrous to puberulent. Leaves with petioles 0.9-2.4 cm long, glabrous to puberulent; blades ovate-lanceolate to ovate, 3.5-8.2 × 1.4-4.1 cm, base rounded to attenuate, apex acuminate to long-acuminate or acute, margin serrate, membranous to subcoriaceous, glabrous or puberulent above along midrib, occasionally punctate beneath. Inflorescences solitary or less often fasciculate, several-flowered or occasionally reduced to a single flower, glabrous to puberulent. Flowers 5- to 7- (to 9-)merous; calyx depressed ovate to deltate, to 1 mm long, glabrous or ciliate, rarely puberulent; petals oblong-elliptic to oblong-ovate, 1.25-2 mm long, apex rounded to acute, white to cream-colored; stamens to 1.75 mm long; ovary ovoid to subglobose, stigmas discoid, flattened. Fruits subglobose, 4-6 × 4-6 mm, often appearing sulcate when dry due to laterally compressed pyrenes within, crowned by persistent stigmas, green becoming red to purple-black.

General distribution: Greater and Lesser Antilles.

Distribution in Lesser Antilles: St. Kitts!, Nevis!, Guadeloupe!, Dominica!, Martinique!.

Common names: Graines vert, pruneau, petit citronnier, bois fourni, ti citron, citronnier montagne.

Notes: Vegetatively a very variable species, especially with respect to certain features of the leaf (texture, margin, and apex). This has resulted, in part, in the extensive synonymy presented above. In general, as noted by D. Nicolson (unpublished manuscript on the Flora of Dominica), the species as it occurs in the Greater Antilles has thicker, more coriaceous leaves, fewer and smaller serrations, and the leaf apex tends to be more acute rather than acuminate. On this basis he recognizes two subspecies (*macfadyenii* and *ovata*), the extremes of which can be strikingly different. However, when viewed over the entire range of the species, this variation appears to be continuous, making any varietal distinctions untenable. Only a detailed, field-oriented study will settle this matter definitively.

Ilex nitida (M. Vahl) Maxim., Mém. Acad. Imp. Sci. Saint Pétersbourg, Sér. 7, **29**(3): 27. 1881.

Basionym: *Prinos nitidus* M. Vahl, Eclog. Amer. **2:** 26. 1798.
Type: Montserrat, *Ryan s.n.* (holotype, C, photo at A!; IDC 2201. **58:** II. 7, III. 1, photo!).
Syn.: *Ilex nitida* (M. Vahl) Maxim. forma *typica* Loes. *in* Urban, Bot. Jahrb. Syst. **15:** 319. 1892, inadmissible epithet for the typical form.

Trees to 20 m tall, ± glabrous throughout. Leaves with petioles 6-11 mm long; blades obovate to oblong-ovate, 5.7-11.8 × 3.9-6.5 cm, base acute to obtuse, apex acute, abruptly acute, or retuse, margin crenulate, ± revolute, coriaceous, shiny dark green above, paler beneath, epunctate. Inflorescences fasciculate, staminate 2- to 6-flowered, rarely 1-flowered, pistillate 1-flowered. Flowers 4- (or 5-) merous; calyx patelliform, lobes to 1 × 2 mm, apex rounded to acute, occasionally ciliolate; petals obovate to oblong-ovate, 3-4 mm long, apex rounded, greenish to white; stamens 1.5-3 mm long; ovary broadly depressed ovoid to subglobose, stigmas discoid to short-columnar, to 1 mm long. Fruits subglobose, 5-7.5 mm in diameter, red or black; pyrenes usually 4, trigonous, shallowly striate or sulcate.

General distribution: Mexico, Cuba, Jamaica, Dominican Republic, Puerto Rico, and the Lesser Antilles.

Distribution in Lesser Antilles: Antigua, Montserrat, Guadeloupe!, Marie Galante, Martinique!.

Common names: Citronnier, graines vertes, pruneau noir, bois de houe.

Ilex sideroxyloides (Sw.) Griseb., Abh. Königl. Ges. Wiss. Göttingen **7:** 224. 1857; Syst. Veg. Karaiben 76. 1857.

Basionym: *Prinos sideroxyloides* Sw., Prodr. 58. 1788; Fl. Ind. Occid. **1:** 624. 1797. Type: Montserrat, "Monte Sulphuris," *de Ponthieu s.n.* (holotype, BM).

Syn.: *Ilex sideroxyloides* (Sw.) Griseb. var. *typica* forma *eggersii* Loes., Nova Acta Acad. Caes. Leop.-Carol. German. Nat. Cur. **78:** 354. 1901. (Type: several syntypes cited.)

Ilex sideroxyloides (Sw.) Griseb. var. *typica* forma *grandifolia* Loes., loc. cit. **78:** 354. 1901. (Syntypes: Guadeloupe, *Duchassaing s.n.* p.p.; Dominica, *Imray 205.*)

Ilex sideroxyloides (Sw.) Griseb. var. *typica* forma *vulgaris* Loes., loc. cit. **78:** 353. 1901. (Type: several syntypes cited.)

Shrub or medium-sized tree to 15(-40?) m tall; bark gray, glabrous throughout. Leaves with petioles 2-15 mm long; blades extremely variable, obovate, oblong-elliptic, ovate, or suborbiculate, 2-10.7 × 1.9-6.1 cm, base rounded, acute, or more often cuneate, apex obtuse or rounded, commonly retuse but also acute or short-acuminate, margin entire and occasionally revolute, or rarely with obscure teeth, coriaceous. Inflorescences fasciculate, less often solitary, staminate 1- to 3-flowered, pistillate generally 1-flowered. Flowers (4- or) 5- to 7-merous; calyx broadly ovate to suborbiculate, 0.75-2 × 0.5-2 mm, apex rounded; petals elliptic to oblong-elliptic, 2.5-4.5 mm long, apex obtuse to rounded, white; stamens 1.5-3 mm long; ovary depressed ovoid to subglobose, stigmas discoid to short-columnar, to 1.25 mm long. Fruits obloid to globose, 4.5-7 × 5-8 mm, smooth, crowned by persistent stigmas, green becoming red to purple-black; pyrenes thin-walled, trigonous, uni- or bisulcate.

GENERAL DISTRIBUTION: Jamaica, Puerto Rico, the Lesser Antilles, and Trinidad.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Bois citron, bois fourni, ti citron, petit citron , citronnier, citronnier blanc, caca poule, caca rat, black beech, white birch.

NOTES: This species, like *I. macfadyenii* (Walp.) Rehder, is quite variable, especially with respect to leaf shape and size. Loesener (1901) recognized several forms on the basis of this variation. Upon examining a large representative sample of collections, it is apparent that this variation is continuous and that the recognition of subspecific taxa is unwarranted.

Several of the early collections from the Lesser Antilles (e.g., Hahn and Eggers) referable to this species were initially identified as *Ilex macoucoua* Pers. or *Ilex celastroides* Klotzsch. Both of these names are considered as synonyms of *Ilex guianensis* (Aublet) Kuntze, a species native from southern Mexico through Central America to northern South America (smaller-leaved varieties of *I. guianensis* also apparently occur in the Dominican Republic and Puerto Rico). This species closely resembles *I. sideroxyloides*, but can be distinguished fairly reliably on the basis of its 4-merous flowers, its shorter style in the female flowers (very evident in fruiting condition), and its oblong-obovate leaves. However, given the variation that occurs in *I. sideroxyloides*, the similarity with *I. guianensis* should be investigated further.

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CELASTRACEAE

by Allan J. Bornstein

CELASTRACEAE R. Br. *in* Flinders, Voy. Terra Austr. **2:** 554. 1814 ('Celastrinae').

Trees or shrubs, less often woody climbers. Leaves alternate or opposite; blades simple, membranous to coriaceous; stipules minute and caducous, or wanting. Inflorescences axillary, rarely terminal, cymose, fasciculate, or racemose. Flowers small, regular, usually perfect, less often unisexual (the plants then commonly dioecious), pedicellate (except *Gyminda*), 4- or 5-merous; sepals small, distinct or nearly so, or connate to half their length, imbricate, persistent; petals distinct, spreading, imbricate; stamens as many as petals and alternate with them, inserted on disk or below its outer margin, filaments short, anthers longitudinally dehiscent, introrse; disk generally well-developed and intrastaminal, flat or lobed, occasionally fused with base of ovary; ovary superior, 2- to 5-locular, placentation axile, ovules usually 2 per locule, style short and thick, or wanting, stigma entire or 2- to 5-lobed. Fruit a drupe or loculicidal capsule; seeds arillate or not.

TYPE: *Celastrus L.*

A pantropical or subtropical family, with extensions into the temperate zone, of approximately 50 genera and over 800 species, excluding the Hippocrateaceae to which they are closely related. For additional information see I. Urban, Symb. Antill. **5:** 48-94. 1904; T. Loesener *in* A. Engler & K. Prantl, Nat. Pflanzenfam. ed. 2, **20b:** 87-197. 1942; D. Hou, Fl. Malesiana I, **6**(2): 227-291. 1963; and G. K. Brizicky, J. Arnold Arbor. **45:** 206-223. 1964.

CULTIVATED SPECIES

A single collection of *Catha edulis* (M. Vahl) Forsskal ex Endl. is known to exist at Paris (P). The collection was made by Belanger on the island of Martinique at the St. Pierre Botanic Garden. There are no other records of this species, native to the Middle East (Yemen), in the West Indies. For an explanation of the nomenclature regarding this species see N. Robson, Bol. Soc. Brot., ser. 2, **39:** 33. 1965.

KEY TO THE GENERA

1. Leaves alternate.
    2. Flowers 5-merous; fruit a loculicidal capsule; seeds arillate.
        3. Plants scandent; inflorescences racemiform; fruits subglobose, 3-lobed and 3-locular . . . . *Celastrus*
        3. Plants shrubs or small trees, non-scandent; inflorescences cymose or fasciculate; fruits ellipsoid, unlobed and bilocular . . . . *Maytenus*
    2. Flowers 4-merous; fruit a drupe; seeds exarillate . . . . *Schaefferia*
1. Leaves opposite.
    4. Flowers 5-merous; fruits ≥ 1.5 cm long; ovules 2 per locule . . . . . . *Cassine*
    4. Flowers 4-merous; fruits ≤ 1 cm long; ovules 1 per locule.
        5. Flowers pedicellate, bisexual; sepals connate nearly half their length; stigmata 4 on a distinct style; ovary 4-locular; ovules erect from base of each locule; drupe red, with persistent, excentric style . . . . . . *Crossopetalum*
        5. Flowers sessile, unisexual, the plants dioecious; sepals distinct or nearly so; stigmata commonly 2, sessile; ovary bilocular; ovules pendulous in each locule; drupe black or dark blue, with persistent, centric style . . *Gyminda*

CASSINE L.

Cassine L., Sp. Pl. **1:** 268. 1753.

Syn.: *Elaeodendron* Jacq. f., Nova Acta Helv. Phy.-Math. **1:** 36. 1780-1784 ("1787"). Type: *Elaeodendron orientale* Jacq. f.

Elaeodendrum Murray, Syst. Veg. ed. **14:** 241. 1784, orth. var. of *Elaeodendron* Jacq. f.

Dioecious, evergreen shrubs or small trees. Leaves opposite or subopposite, decussate, rarely alternate; blades entire or crenulate-serrulate, coriaceous; stipules small, caducous. Inflorescences axillary, cymose, distinctly pedunculate. Flowers unisexual, 5-merous (in our species); sepals distinct or nearly so; petals greenish white; stamens inserted under margin of disk, filaments subulate, anthers subglobose, versatile, petaloid staminodes present in pistillate flowers; disk fleshy, flat, ± crenate; ovary adnate to and partly immersed within disk, 2- to 5-celled, ovules 2 per locule, style very short, stigma obscurely 2- to 5-lobed. Fruit a large indehiscent drupe; seeds exarillate.

LECTOTYPE: *Cassine peragua* L. (see Miller, Gard. Dict. abr. ed. 4. 1754).

A genus of approximately 80 species, mostly African. A single species occurs in the Lesser Antilles.

NOTES: There is some question regarding the inclusion of *Elaeodendron* (sensu stricto) in *Cassine.* Most recent publications follow the suggestion of Hou (1963) and recognize *Cassine* in a broad sense to include *Elaeodendron.* Proctor (1984) expresses dissatisfaction with this concept as it creates "confusion in delimiting the other genera in the Celastraceae." We have chosen to follow the prevailing viewpoint by recognizing *Cassine* sensu lato.

The generic name *Elaeodendron* is sometimes cited as first appearing in the elder Jacquin's Icon. Pl. Rar. **1:** *t. 48.* 1782. However, in this publication reference is made to the publication in Nova Acta Helv. Phy.-Math. (as Acta Helv. vol. 9). Although the exact date of the latter volume is uncertain, the elder Jacquin's reference to it would indicate that it predates his own publication.

Cassine xylocarpa Vent., Choix Pl. 23, *t. 23.* 1803. FIGURE 45.

Type: St. Thomas, cultivated in garden of J. M. Cels. An herbarium specimen made from the cultivated plant may be at G.

Syn.: *Elaeodendron xylocarpum* (Vent.) DC., Prodr. **2:** 11. 1825.
Freziera dioica Macfad., Fl. Jamaica 115. 1837. (Type: Jamaica, *Macfadyen s.n.* (holotype, K).)
Elaeodendron attenuatum A. Rich., Hist. Phys. Cuba, Bot. Pl. Vasc. 343. 1846. (Type: Cuba, *Sagra collection(s)* (holotype or syntypes, P; photos at A!).)
Elaeodendron dioicum (Macfad.) Griseb., Fl. Brit. W. Indian Is. 709. 1864.
Cassine attenuata (A. Rich.) Kuntze, Revis. Gen. Pl. **1:** 114. 1891.
Elaeodendron xylocarpum (Vent.) DC. var. *attenuatum* (A. Rich.) Urban, Symb. Antill. **5:** 88. 1904.
Elaeodendron attenuatum A. Rich. var. *dioecum* (Macfad.) Urban, Symb. Antill. **5:** 89. 1904.
Elaeodendron xylocarpum (Vent.) DC. var. *caribaeum* Urban, Symb. Antill. **5:** 90. 1904. (Syntypes: Guadeloupe, *Duss 3680* (isosyntype, GH!); Martinique, *Duss 587*; Bequia, *Smith(s) 125*; St. Vincent, *Smith(s) 446*; all collections at B, presumably destroyed).)
Cassine dioica (Macfad.) Lobr.-Callen, Adansonia **15:** 220. 1975.

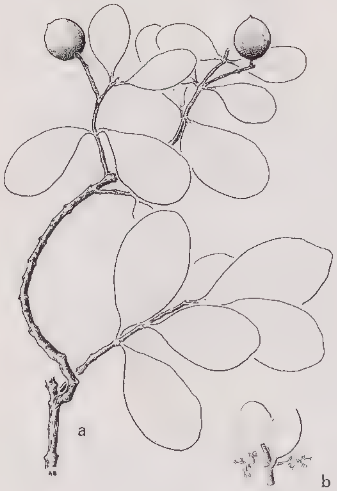
Shrub or small tree to 4(-8) m tall (up to 15 m elsewhere); bark gray and smooth or slightly fissured. Leaves with petioles to 1.5 cm long; blades mostly obovate or oblong-obovate, less often oblong, elliptic, or suborbiculate, 2.3-12.7 × 1.4-6.3 cm, base rounded to cuneate, apex obtuse to rounded, occasionally retuse, less often acute or very short-acuminate, margin entire in small-leaved specimens to distinctly crenulate-serrulate in large-leaved specimens, commonly revolute. Inflorescences usually shorter than leaves, cymes branched. Flowers with pedicels 1-3 mm long; sepals suborbiculate to ovate, to 1 mm long; petals oblong-elliptic, 2-3 mm long, apex obtuse; stamens in staminate flowers to 1 mm long, petaloid staminodes of pistillate flowers oblong-elliptic, 1-1.5 mm long; ovary broadly ovoid, stigma generally 2- or 3-lobed. Fruits globose to ellipsoid or obovoid, 1.6-2.8 × 1.1-1.6 cm, apex rounded or apiculate, yellow to greenish yellow.

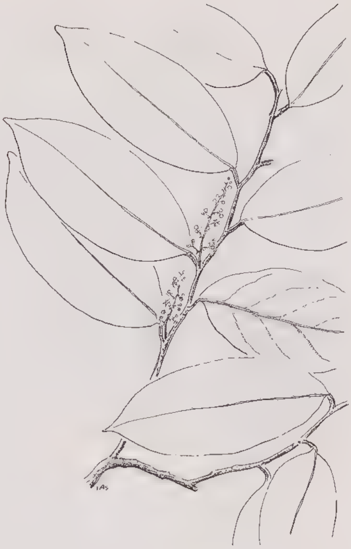
GENERAL DISTRIBUTION: Greater and Lesser Antilles, Mexico, Panama, and Venezuela.

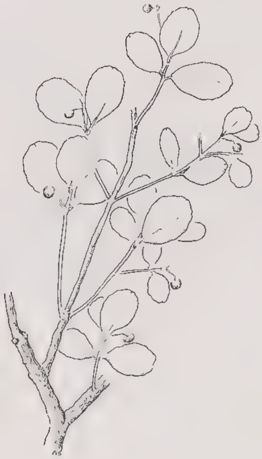
DISTRIBUTION IN LESSER ANTILLES: Anguilla!, Antigua!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Martinique!, St. Vincent!, the Grenadines!.

COMMON NAMES: Bois-tan, prune bord-de-mer, grosse-peau, cuttard.

NOTES: Urban (Symb. Antill. **5:** 88-92. 1904) established a number of varieties on the basis of the size and shape of the leaves and fruits. These features prove to be quite variable over the range of the species and therefore the status of these varieties is questionable. If, upon closer scrutiny, they







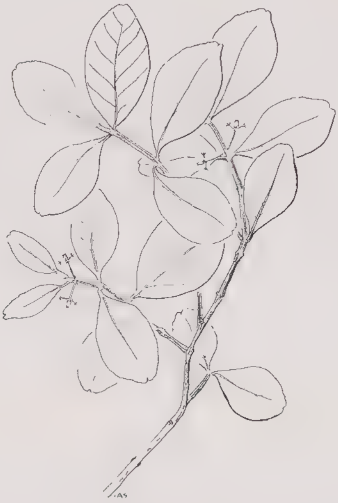


FIGURE 45 (upper left). *Cassine xylocarpa*: a, fruiting branch, × 0.3; b, flowering branch, × 0.3. FIGURE 46 (upper right). *Celastrus racemosus*: flowering branch, × 0.3. FIGURE 47 (lower left). *Crossopetalum rhacoma*: fruiting branch, × 0.3. FIGURE 48 (lower right). *Gyminda latifolia*: fruiting branch, × 0.3.

prove to be valid, then most of the Lesser Antillean material would be in his var. *caribaeum.*

CELASTRUS L.

Celastrus L., Sp. Pl. **1:** 196. 1753.

Scandent shrubs with conspicuously lenticellate branchlets, glabrous. Leaves alternate, deciduous; blades subentire to distinctly crenulate-serrulate; stipules small, caducous. Inflorescences axillary and/or terminal, many-flowered, racemiform dichasial cymes. Flowers perfect (in our species), 5-merous, with articulate, accrescent pedicels; sepals campanulate, lobes distinct or nearly so; petals greenish white to white; stamens inserted on or under margin of disk, filaments linear, anthers ovoid, versatile; disk cupuliform, somewhat fleshy and obscurely 5-lobed; ovary free from disk or slightly confluent with it at base, incompletely 3-celled, ovules 1 per locule, style short-columnar, stigma obscurely 3-lobed. Fruit a loculicidal capsule separating into 3 valves; seeds enclosed by fleshy crimson aril.

LECTOTYPE: *Celastrus scandens* L. (see N. L. Britton and A. Brown, Ill. Fl. N. U.S., ed. 2. **2:** 492. 1913).

A pantropical genus of approximately 30 species, but extending into the temperate zone. The single West Indian species, *C. racemosus*, is a member of subg. *Racemocelastrus* (Hou, 1955) characterized by the perfect flowers, uniovulate locules, and typically 1-seeded fruits (vs. subg. *Celastrus* with unisexual flowers, biovulate locules, and 3- to 6-seeded fruits).

Celastrus racemosus (Reisseck) Loes., Bot. Jahrb. Syst. **24:** 199. 1898.
FIGURE 46.

Basionym: *Maytenus racemosa* Reisseck *in* C. Martius, Fl. Bras. **11**(1): 30, *t. 4, fig. 15.* 1861 (as 'racemosus').
Type: Brazil, Rio de Janiero, *Riedel s.n.* (holotype, M?; isotype, US).
Syn.: *Celastrus grenadensis* Urban, Symb. Antill. **5:** 51. 1904. (Type: Grenada, Montis Morne, *Eggers 6222* (holotype, B; presumably destroyed).)

Scandent shrub to 50 m (?) tall; branches reddish-brown with white lenticels. Leaves with petioles 5-8 mm long, adaxially canaliculate; blades elliptic, 8.8-14.9 × 3.6-8.1 cm, base obtuse to rounded, apex acute to short-acuminate, margin crenulate-serrulate to serrulate, subcoriaceous. Inflorescences generally axillary, shorter than leaves, to 6.1 cm long; bractlets deltate, erose to irregularly laciniate. Flowers on pedicels 1-1.5 mm long; sepals deltate or broadly ovate, ca. 1 mm long, erose; petals oblong-ovate, to 1.75 mm long, apex obtuse, reflexed at anthesis; stamens as long as or slightly longer than petals; disk yellow-orange (per Howard notation); ovary ovoid. Fruits oblate (in representative specimens), ca. 1 × 1.2 cm, on pedicels 3-4 mm long; valves elliptic, 10 × 6 mm.

GENERAL DISTRIBUTION: Mexico, Belize, Guatemala, Costa Rica, Venezuela, Brazil, Trinidad, and the southern Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Grenada!.

NOTES: Ding Hou (1955) listed *C. grenadensis* Urban among his doubtful species. Although we have not seen type material, on the basis of Urban's description it seems to agree in all respects with *C. racemosus.* This is apparently a very rare species in the Lesser Antilles as it is known only from three collections (*Howard & Howard 18771*, *Proctor 17331*, and *Whitefoord 3869*).

CROSSOPETALUM P. Browne

Crossopetalum P. Browne, Civ. Nat. Hist. Jamaica 145. *pl. 17, fig. 1.* 1756.

Syn.: *Rhacoma* L., Syst. Nat. ed. 10, **2:** 885, 896, 1361. 1759, nom. illegit. for *Crossopetalum* P. Browne.

Evergreen shrubs or small trees. Leaves opposite or less often whorled, short-petiolate; blades crenulate-serrulate, chartaceous to subcoriaceous; stipules minute. Inflorescences axillary, few-flowered, dichasial cymes (simple or compound). Flowers perfect, 4-merous, pedicellate; sepals connate, forming 4-lobed calyx; petals greenish tinged with red, reflexed; stamens inserted between lobes of disk, filaments subulate, anthers suborbicular; disk annular to short-cupuliform, 4-lobed; ovary ovoid to subglobose, free from disk, 4-locular, ovules 1 per locule, erect, style short-conical, stigmas 4, narrow, spreading. Fruit a small, somewhat fleshy, red drupe; seeds exarillate.

TYPE: *Rhacoma crossopetalum* L. = *Crossopetalum rhacoma* Crantz.

A tropical American genus of approximately 15 species ranging from southern Florida to northern South America, but best represented in the West Indies and Central America.

Crossopetalum rhacoma Crantz, Inst. Rei Herb. **2:** 321. 1766.
FIGURE 47.

Type: Jamaica, P. Browne, Civ. Nat. Hist. Jamaica, *pl. 17, fig. 1.* A typotype specimen does exist in the Linnaean herbarium (LINN 146.1).

Syn.: *Rhacoma crossopetalum* L., Syst. Nat. ed. 10, **2:** 896, 1361. 1759. (Type: as for *Crossopetalum rhacoma* Crantz.)

Myginda rhacoma Sw., Prodr. 39. 1788, nom. illegit. for *Rhacoma crossopetalum* L.

Myginda latifolia M. Vahl, Symb. Bot. **2:** 32. 1791, non Sw. (1788). (Type: St. Croix, *Pflug s.n.* (holotype, C).)

Myginda rotundata Lam., Tabl. Encycl. **1:** 308. 1792. (Type: Antilles, *Richard s.n.* (holotype, P-LA; IDC 6207. 125: II. 4, photo!).)

Myginda glossopetalum Raeusch., Nomencl. Bot. ed. **3:** 43. 1797, nomen nudum; misspelling of *Myginda crossopetalum.*

Myginda pallens Banks ex Smith *in* Rees, Cycl. vol. 24. 1813. (Type: Antigua, *Masson s.n.* (holotype, BM, photo at A!; isotype, GH!).)

Myginda latifolia M. Vahl var. *stylifera* Griseb., Abh. Königl. Ges. Wiss. Göttingen **7:** 192. 1857; Syst. Veg. Karaiben 44. 1857, nom. illegit. as Grisebach should have adopted the epithet 'pallens' since he cites *M. pallens* Smith in synonymy.

Rhacoma pallens (Banks ex Smith) M. Gomez, Anales Soc. Esp. Hist. Nat. **19:** 239. 1890.

Crossopetalum pallens (Banks ex Smith) Kuntze, Revis. Gen. Pl. **1:** 116. 1891.

Crossopetalum rotundatum (Lam.) Kuntze, Revis. Gen. Pl. **1:** 116. 1891.

Shrub or occasionally becoming tree-like, to 4 m tall; youngest branches quadrangular, older branches spreading; bark smooth, gray. Leaves subsessile to short-petiolate, the petioles 0.25-1.5(-3) mm long; blades variable as to shape, oblanceolate, elliptic, oblong, obovate, or ovate, 1-3.9(-5.8) × 0.6-2.8(-3.4) cm, base cuneate to attenuate, apex acute to rounded or obtuse, occasionally retuse, margin crenulate-serrulate, particularly beyond middle. Inflorescences generally shorter than leaves; peduncles slender, to 1.5 cm long, glabrous to puberulous. Flowers distinctly pedicellate (compare *Gyminda*), pedicels short, to 3 mm long, puberulous or glabrescent; calyx urceolate, sepal lobes 0.5-0.75 mm long, apex rounded to obtuse, ciliate; petals obovate to suborbiculate, ca. 1 mm long; stamens as long as calyx lobes, commonly reflexed between petals. Fruits obliquely obovoid, 4-5(-6) mm long, crowned by persistent, excentric style, red when ripe.

General distribution: Florida, the West Indies, southern Mexico, northern Central America, and northern South America.

Distribution in Lesser Antilles: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!, Martinique!, St. Lucia!.

Common names: Maidenberry, ti bonbon.

Note: A species often confused with and misidentified as *Gyminda latifolia* (Sw.) Urban, but from which it can readily be distinguished on the basis of the characters listed in the generic key to the family.

GYMINDA Sargent

Gyminda (Griseb.) Sargent, Gard. & Forest **4:** 4. 1891.

Basionym: *Myginda* sect. *Gyminda* Griseb., Cat. Pl. Cub. 55. 1866.

Dioecious, evergreen shrubs or small trees. Leaves opposite, short-petiolate; blades subentire to obscurely crenulate-serrulate toward apex, subcoriaceous; stipules minute. Inflorescences axillary, few-flowered, dichasial cymes (simple or compound). Flowers unisexual, 4-merous, sessile; sepals distinct or slightly connate at base; petals cream-colored to white, reflexed; stamens inserted between lobes of disk, absent from female flowers, filaments subulate, anthers suborbicular; disk fleshy, 4-lobed and crenulate in male flowers, adnate to base of ovary in female flowers; ovary oblong-ovoid, rudimentary and abortive in male flowers, 2-locular, ovules 1 per locule, pendulous, style wanting, stigmas 2(to 4?), peltate. Fruit a small, somewhat fleshy, blue-black drupe; seeds exarillate.

TYPE: *Gyminda grisebachii* Sarg. = *Gyminda latifolia* (Sw.) Urban.

A tropical American genus of three species occurring in southern Florida, Mexico, the West Indies, and Central America. The name is an anagram of *Myginda*, to which some of the species had been referred.

Gyminda latifolia (Sw.) Urban, Symb. Antill. **5:** 80. 1904. FIGURE 48.

Basionym: *Myginda latifolia* Sw., Prodr. 39. 1788; Fl. Ind. Occid. **1:** 342. 1797.
Type: West Indies, based on material in the Banks herbarium (BM, n.v.), but a specimen also at S (photo at A!).
Syn.: *Myginda integrifolia* Poiret forma *glaucifolia* Griseb., Cat. Pl. Cub. 55. 1866. (Type: Cuba, *Wright 81a* (holotype, GOET).)
Crossopetalum latifolium (Sw.) Kuntze, Revis. Gen. Pl. **1:** 116. 1891.
Gyminda grisebachii Sarg., Gard. & Forest **4:** 4. 1891. (Type: Florida, *Blodgett s.n.*, location unknown.)
Gyminda grisebachii Sarg. var. *glaucifolia* (Griseb.) Sarg., Gard. & Forest **4:** 4. 1891 (as 'glaucescens').
Myginda pallens Sarg., Forest Trees N. Amer. **9:** 38. 1891, non Banks ex Smith (1813).
Rhacoma latifolia (Sw.) Loes. *in* Engl. & Prantl, Nat. Pflanzenfam. **3**(5): 217. 1892.

Shrub or small tree to 6 m tall; youngest branches ± quadrangular; bark gray to reddish-brown, flaking in thin, narrow strips. Leaves with petioles 1-6 mm long; blades variable as to shape, elliptic, oblong, obovate, or oblanceolate, 1.2-6 × 0.75-3.7 cm, base cuneate to attenuate, apex rounded to obtuse, commonly retuse to emarginate, margin often appearing entire, but usually obscurely crenulate-serrulate toward apex, ± revolute. Inflorescences shorter than leaves; peduncles slender, to 1.8 cm long, glabrous. Flowers sessile (appearing pedicellate, but with bractlets immediately subtending); sepal lobes broadly ovate to suborbiculate, ca. 0.75 mm long, apex rounded; petals elliptic-ovate to oblong, 1.5-2 mm long; stamens ± equal in length to petals. Fruits ellipsoid or slightly obovoid to subglobose, 5.5-7 mm long, crowned by persistent stigmas, blackish when ripe.

GENERAL DISTRIBUTION: Southern Florida, the West Indies, and Mexico.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, Barbuda!, Antigua!, St. Eustatius!, Montserrat, Guadeloupe!, La Désirade!, Marie Galante!, Martinique!, St. Lucia, St. Vincent.

COMMON NAMES: Petit merisier, cuttard.

MAYTENUS Molina

Maytenus Molina, Sag. Stor. Nat. Chili 177, 349. 1782.

Evergreen, glabrous shrubs or small trees; branchlets with obscure lenticels. Leaves alternate; blades entire to crenulate, chartaceous to coriaceous; stipules minute, caducous. Inflorescences axillary, fasciculate, or occasionally the flowers solitary. Flowers unisexual by abortion, 5-merous, pedunculate; sepals connate at base; petals greenish-white to white, or yellow, spreading; stamens inserted on or under margin of disk, shorter than petals, reduced and sterile in female flowers, filaments subulate, anthers ovoid-suborbicular; disk very conspicuous, fleshy, flat, ± 5-lobed; ovary immersed in and fused basally with disk, 2-locular, ovules 1 or 2 per locule, style short-conical or wanting, stigmas 2- or 3-lobed. Fruit a loculicidal capsule separating into 2 valves; seeds enclosed in fleshy scarlet aril.

TYPE: *Maytenus boaria* Molina.

A pantropical genus of over 200 species, best developed in South America.

KEY TO THE SPECIES

1. Young stems terete to more or less compressed, not angular; fruits 1.8-3 cm long; leaves 9-25 cm long.................................... *M. guyanensis*
1. Young stems quadrangular; fruits < 1.5 cm long; leaves 2.6-9.5(-10.8) cm long.
    2. Leaf margin entire, apex rounded to acute, not acuminate... *M. laevigata*
    2. Leaf margin densely crenulate, apex acuminate to abruptly acuminate.
        3. Leaves shiny above, densely lineate; flowers yellow...... *M. tetragona*
        3. Leaves opaque, not lineate; flowers white............ *M. grenadensis*

NOTE: A fifth species, *Maytenus vincentinus* Turcz. (Bull. Soc. Nat. Mosc. **36:** 100. 1863), typified by a collection from St. Vincent (*Caley s.n.*, holotype at LE), is actually *Zanthoxyllum monophyllum* (Lam.) P. Wilson (Bull. Torrey Bot. Club **37:** 86. 1910). See R. Howard, Fl. Lesser Antilles **4:** 566. 1988.

Maytenus grenadensis Urban, Symb. Antill. **5:** 63. 1904.

Type: Grenada, *Broadway 1129* (holotype, B, presumably destroyed; isotype, NY).

Tree of unknown dimensions; young branchlets distinctly quadrangular. Leaves with petioles 1.5-4 mm long; blades elliptic to oblong-elliptic, 3.7-6.6 × 2.2-3.4 cm, base obtuse to attenuate, apex abruptly acuminate or acuminate, margin crenulate, chartaceous to subcoriaceous, surface non-lineate. Inflorescences fasciculate, few-flowered. Flowers with peduncles to 3 mm long; sepals depressed-ovate, to 0.5 mm long; petals ovate, to 1.5 mm long, white; stamens ca. 1 mm long; female flowers unknown. Fruits unknown.

GENERAL DISTRIBUTION: Endemic to Grenada.

NOTES: Known only from the Broadway collection(s) made in November of 1896. A specimen at GH is without a collection number (12 Nov. 1896) and may be the same as the type collection.

This species, if distinct as it appears to be, most closely resembles *M. tetragona* Griseb. The leaves of *M. tetragona* are, in general, larger than those of *M. grenadensis*, and they have numerous, fine anastomosing lines or striations on the upper surface providing a very characteristic appearance. Flower color used in the key to species is a character taken from Urban's treatment of the Celastraceae (Symb. Antill. **5:** 48-94. 1904). It is not possible to infer flower color from examining the very few available collections of these two species, so this distinction must be considered tentative.

Maytenus guyanensis Klotzsch ex Reisseck *in* C. Martius, Fl. Bras. **11**(1): 19, *t. 2, fig. 14.* 1861.

Type: British Guiana, *Schomburgk 36* (holotype, B, presumably destroyed; photo at A!).

Shrub or small tree to 9 m tall; young branchlets terete or ± compressed, not angular. Leaves with petioles 3-10 mm long; blades elliptic to more commonly oblong, (6.5-)9-25 × 2.4-10 cm, base rounded to attenuate, apex acuminate, margin entire or rarely obscurely crenulate, thick chartaceous to coriaceous, surface non-lineate. Inflorescences fasciculate, few-flowered, occasionally grouped into racemes. Flowers with peduncles 1.5-4.5 mm long; sepals broadly-ovate to suborbiculate, to 0.5 mm long, entire or ciliate; petals ovate, 1.25-1.75 mm long, yellow to yellowish-green; stamens to 1.25 mm long, longest in male flowers; ovary (including style) very short-conical, rudimentary in male flowers, stigma peltate, undivided. Fruits obovoid, or ovoid to subglobose, somewhat compressed laterally, 1.6-2.4 cm long, style persistent, apiculate, greenish in color.

GENERAL DISTRIBUTION: Lesser Antilles and British Guiana.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique.

COMMON NAMES: Café-bois, bois-café, cachelain grand bois.

NOTE: The name was first published by Richard Schomburgk (Reis. Br.-Guiana **3:** 1097. 1849) as a nomen nudum.

Maytenus laevigata (M. Vahl) Griseb. ex Eggers, Vidensk. Meddel. Dansk Naturhist. Foren. Kjobenhavn **8:** 109. 1876.

Basionym: *Rhamnus laevigatus* M. Vahl, Symb. Bot. **3:** 41. 1794.
Type: St. Croix, *West s.n.* (holotype, C).
Syn.: *Senacia elliptica* Lam., Tabl. Encycl. **2:** 96. 1797. (Type: Antilles, *Richard s.n.* (holotype, P-LA; IDC 6207. 125: III. 7, photo!).)
Ceanothus laevigatus (M. Vahl) DC., Prodr. **2:** 30. 1825.
Ceanothus laevigatus (M. Vahl) DC. var. *guadeloupe* DC., Prodr. **2:** 30. 1825. (Type: Guadeloupe, *Bertero s.n.* (holotype, G-DC; IDC 2562. 280: I. 2, photo!).)
Maytenus elliptica (Lam.) Krug & Urban ex Duss, Fl. Phan. Antill. Franc. 145. 1897, excl. syn. *M. gonocladus* Griseb. (= *M. tetragona* Griseb.).

Shrub or small tree to 10 m tall; young branchlets distinctly quadrangular. Leaves with petioles 2-6 mm long; blades elliptic to obovate, 2.6-10.8 × 1.4-5.9 cm, base obtuse to attenuate, apex rounded to obtuse, commonly retuse to emarginate, margin entire, ± revolute, coriaceous, surface non-lineate, shiny above, dull gray-green beneath. Inflorescences fasciculate, few-flowered, or rarely the flowers solitary. Flowers with peduncles 2.5-5.5 mm long; sepals broadly ovate to suborbiculate, to 0.75 mm long, ± ciliate; petals ovate to oblong, to 1.75 mm long, apex rounded, yellow to yellow-green; stamens to 1 mm long; ovary (including style) conical, stigma bilobed. Fruits obovoid to ovoid or subglobose, 0.8-1.3 cm long, yellow to orange.

GENERAL DISTRIBUTION: Greater and Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Anguilla, St. Barts!, St. Eustatius!, Montserrat, Guadeloupe!, Marie Galante!, Dominica!, Martinique, St. Lucia!, St. Vincent!, the Grenadines!.

COMMON NAMES: Bois-citron, bois-guillaume, white cinnamon, deux guns, degun, bwa di bas.

NOTES: This species has been referred to in the literature and identified on herbarium specimens as *Maytenus elliptica* (Lam.) Krug & Urban [ex Duss]. Although it has been understood for quite some time that *Rhamnus laevigatus* M. Vahl and *Senacia elliptica* Lam. are the same species, all previous authors were apparently under the impression that the Lamarck name predated that of Vahl since the date as given on the title page of volume two of the Tabl. Encycl. is 1793. In actuality, the correct date of publication of pages 73-136 is 1797. Therefore, the Vahl name has priority and should serve as the basionym of the combination in the genus *Maytenus*.

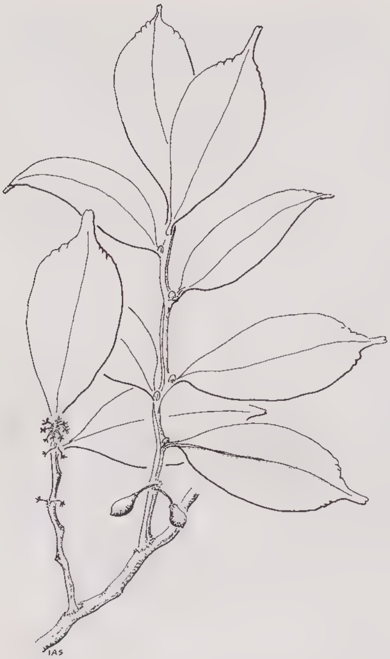
Maytenus tetragona Griseb., Fl. Brit. W. Indian Is. 709. 1864. (as 'tetragonus'), nom. nov. for *M. gonocladus* Griseb. FIGURE 49.

Lectotype: Trinidad, *Lockhart s.n.* (K, photo at A!).
Syn.: *Maytenus gonocladus* Griseb., Fl. Brit. W. Indian Is. 145. 1860, non C. Martius (1841).
Maytenus sieberiana Krug & Urban in Urban, Symb. Antill. **5:** 60. 1904. (Type: Trinidad, *Sieber 36* (holotype, B, presumably destroyed; isotype, G-DEL, photo at GH!).)

Shrub or tree, 2-13 m tall; young branchlets distinctly quadrangular. Leaves with petioles 2.5-5 mm long; blades elliptic to oblong-lanceolate or narrowly obovate, 4.1-9.4 × 1.5-4.1 cm, base acute to attenuate, apex abruptly acuminate or acuminate, margin crenulate, chartaceous to subcoriaceous, shining above, surface with numerous fine striations. Inflorescences fasciculate, few-flowered. Flowers with pedicels to 4 mm long; sepals broadly ovate, to 0.75 mm long, denticulate; petals ovate to oblong-ovate, 1.5-2 mm long, apex acute or obtuse, yellow; stamens to 1.25 mm long in male flowers, to 0.5 mm long in female flowers; ovary in female flowers (including style) conical, rudimentary in male flowers, style to 0.5 mm long, stigma bilobed. Fruits obovoid, 0.5-1.1 cm long, purple-brown.

GENERAL DISTRIBUTION: Southern Windward Islands and Trinidad.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!, Grenada!.



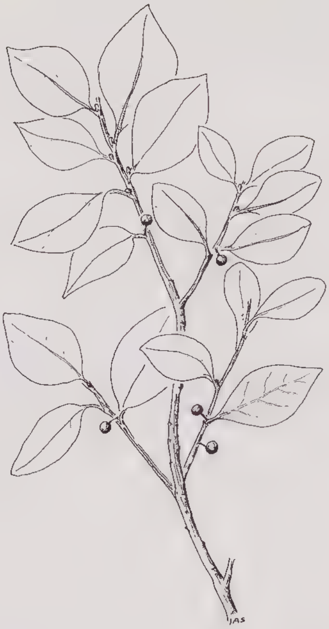


FIGURE 49 (left). *Maytenus tetragona*: fruiting branch, × 0.4. FIGURE 50 (right). *Schaefferia frutescens*: fruiting branch, × 0.4.

COMMON NAME: White gouti wood.

NOTES: The Sieber collection that is the basis of *Maytenus sieberiana* was initially cited by Grisebach as a syntype of *M. tetragona*. However, Krug and Urban specifically excluded this specimen when they described *M. sieberiana*, and therefore the Lockhart specimen at K becomes the lectotype of *M. tetragona* by implication. Krug and Urban distinguished *M. sieberiana* from *M. tetragona* on the basis of the compressed vs. quadrangular aspect of the young branchlets. In all other respects (ex descr. & photo of isotype), it appears to fall within the circumscription of *M. tetragona*.

SCHAEFFERIA Jacq.

Schaefferia Jacq., Enum. Syst. Pl. 10. 1760.

Dioecious shrubs or small trees, evergreen, glabrous. Leaves alternate or clustered on short shoots, short-petiolate; blades entire, chartaceous; stipules minute or rudimentary. Inflorescences axillary, fasciculate, few-flowered, or the flowers solitary. Flowers unisexual by abortion, 4-merous, pedunculate; sepals nearly distinct; petals yellowish to greenish-white; stamens shorter than petals, absent from female flowers, filaments subulate, anthers oblong-ellipsoid to subquadrangular; disk inconspicuous (female) or wanting (male); ovary basally fused with disk, rudimentary in male flowers, 2-locular, ovules 1 per locule, style short, stout, stigma bifid, the lobes large, spreading or reflexed. Fruit a small, dry drupe; seeds 2, exarillate.

TYPE: *Schaefferia frutescens* Jacq.

A tropical American genus of 10 to 16 species.

Schaefferia frutescens Jacq., Enum. Syst. Pl. 33. 1760; Select. Stirp. Amer. Hist. 259. 1763. FIGURE 50.

Type: Cartagena, collection not specified, but a Jacquin collection may exist at BM or W.

Syn.: *Schaefferia completa* Sw., Prodr. 38. 1788; Fl. Ind. Occid. **1:** 327. 1797, nom. illegit. for *Schaefferia frutescens* Jacq.

Schaefferia frutescens Jacq. var. *buxifolia* DC., Prodr. **2:** 41. 1825. (Syntypes: Sloane, Voy. Jamaica **2:** *t. 209, fig. 1.* 1725; Lam., Tabl. Encycl. *t. 809.* 1799.)

Schaefferia buxifolia (DC.) Nuttall, N. Amer. Sylv. **2:** 42, *t. 56.* 1853.

Shrubs or small trees to 6 m tall; bark gray, smooth or narrowly fissured. Leaves with petioles 1.5-4 mm long; blades broadly elliptic to narrowly elliptic-lanceolate, or less often obovate, 1.8-6.5 × 0.8-3.4 cm, base cuneate to attenuate, apex acute to obtuse, less often retuse to emarginate, margin ± revolute, veins finely anastomosing, prominent on both surfaces, pale yellow-green. Flowers with peduncles 2-5 mm long; sepals ovate, to 0.5 mm long; petals oblong to oblong-elliptic, 2.5-4 mm long, commonly reflexed; stamens to 1.5 mm long; ovary ovoid. Fruits ovoid to subglobose, 4-5 mm long, medially grooved, apiculate, surface warty, orange-red to bright red.

GENERAL DISTRIBUTION: Southern Florida, the West Indies, southern Mexico to northern Central America, and South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts!, Barbuda, Antigua!, Saba, St. Eustatius, St. Kitts!, Montserrat!, Guadeloupe!, Martinique, the Grenadines!, Grenada!.

COMMON NAMES: Merisier, petit merisier.

HIPPOCRATEACEAE

by Allan J. Bornstein

HIPPOCRATEACEAE A. L. Juss., Ann. Mus. Natl. Hist. Nat. **18:** 486. 1811 ('Hippocraticeae').

Lianas with scandent branches (shrubs or slender trees elsewhere). Leaves usually opposite, petiolate; blades simple; stipules interpetiolar, minute, caducous. Inflorescences axillary, paniculate or corymbiform cymes. Flowers small, regular, perfect, generally 5-merous except for stamens, bracteolate, pedicellate; sepals imbricate, persistent; petals imbricate or valvate; stamens usually three, inserted within disk, filaments usually flattened, ligulate, reflexed or suberect, anthers basifixed, transversely ellipsoid, extrorsely dehiscent via horizontal slits; disk extrastaminal, conspicuous or not, annular to conical-pulvinate, membranous to fleshy; ovary superior, trigonous, often immersed within disk, 3-locular, ovules 2 to 10 (usually 4 to 6) per locule, style present, stigma 3-lobed, usually obscure. Fruits of three separate, divergent capsules, each capsule dorsiventrally compressed, flattened to convex, dehiscent along an inconspicuous median suture forming two valves; seeds without endosperm, attached by a basal wing.

TYPE: *Hippocratea* L.

A pantropical family of about 25 genera and over 300 species, although some authors consider the family to consist of only two genera, *Salacia* and *Hippocratea*; with major centers of distribution in South America and Africa. The segregation of this family from the Celastraceae is a matter of debate with modern treatments equally divided toward combining and separating them. Ding Hou (Fl. Malesiana I, **6:** 389-421. 1964) presents a rather convincing argument for recognizing only the Celastraceae sensu lato. Nevertheless, because the three Lesser Antillean taxa are readily separable from their Celastracean counterparts, we have chosen to recognize the Hippocrateaceae as a distinct family, being fully aware that they would probably be better treated as a subfamily or tribe within the Celastraceae.

For additional information see A. C. Smith, Brittonia **3:** 341-555. 1940, and the article by Ding Hou cited above.

KEY TO THE GENERA

1. Branchlets and inflorescences puberulent; petals transversely barbate within; disk conspicuous, conical-pulvinate, puberulent .... *Hippocratea*
1. Branchlets and inflorescences glabrous; petals glabrous throughout; disk inconspicuous and annular, or conspicuous and short-cylindric, glabrous.
    2. Flowers < 5 mm in dia. at anthesis; petals < 3 mm long; disk inconspicuous, annular; fruit flattened to slightly convex, ellipsoid; seeds ± flattened, basal wing membranous .... *Pristimera*
    2. Flowers > 10 mm in dia. at anthesis; petals > 5 mm long; disk conspicuous, short-cylindric; fruit convex, suborbicular; seeds ellipsoid, not flattened, basal wing subcoriaceous .... *Cuervea*

CUERVEA Triana ex Miers

Cuervea Triana ex Miers, Trans. Linn. Soc. London **28:** 370. 1872.

Syn.: *Romualdea* Triana & Planchon, Ann. Sci. Nat. Bot. ser. 5, **16:** 370. 1872. (Type: *Romualdea malpighiifolia* (Rudge) Triana & Planchon (as 'malpighifolia'); basionym: *Hippocratea malpighiifolia* Rudge.)

Lianas, glabrous throughout. Leaves opposite or subopposite; blades entire to obscurely crenulate, chartaceous to subcoriaceous. Inflorescences several-flowered, paniculate to corymbiform cymes, usually pedunculate. Flowers congested toward apices of ultimate branchlets, > 10 mm in diameter at anthesis, fragrant; disk conspicuous, short-cylindric, membranous to subfleshy; stamens 3, filaments suberect; ovary exposed, style short, stout, stigmas 3, conspicuous. Fruits convex on both surfaces; seeds 2 to 6, ellipsoid, seed cavity coriaceous, basal wing chartaceous to subcoriaceous, with median nerve.

LECTOTYPE: *Cuervea grenadensis* Miers = *Cuervea kappleriana* (Miers) A. C. Smith. (See A. C. Smith, Brittonia **3:** 397. 1940.)

A genus of 5 species occurring in Mexico, Central America, the West Indies, and northern South America.

Cuervea kappleriana (Miq.) A. C. Smith, Brittonia **3:** 399. 1940. FIGURE 53.

Basionym: *Hippocratea kappleriana* Miq., Linnaea **26:** 220. 1853.

Type: Surinam, Marowyne, *Kappler 1972* (photo of B specimen, GH!; photo of U specimen, A!, GH!).

Syn.: *Pristimera apiculata* Miers, Trans. Linn. Soc. London **28:** 360. 1872. (Syntypes: British Guiana, *Schomburgk 352* (BM, K; isosyntype, GH!), *Appun 869* (K); St. Vincent, *Guilding s.n.* (K; isosyntype, GH!).)

Hippocratea miersii Loes. *in* Engl. & Prantl, Nat. Planzenfam. **3**(5): 228. 1893, nom. nov. for *Pristimera apiculata* Miers, non *Hippocratea apiculata* Welw. ex Oliver (1868).

Leaves with petioles 5-20 mm long; blades oblong-elliptic to oblong-ovate, 6-20.7 × 2.3-12.1 cm, base subacute to rounded, apex acute to gradually acuminate. Inflorescences with peduncles 0-4.5 cm long. Flowers with sepals broadly ovate to ovate-deltoid or suborbiculate, 1-2 mm long, subentire to erose, yellow-green; petals oblong-elliptic to obovate, 5-7.5 mm long, entire to basally erose, margins often inrolled, white to yellow; disk to 0.5 mm high; style to 0.5 mm long. Fruits broadly obovoid to suborbicular to transversely ellipsoid, 5-8.1 × 5.7-9.1 cm, to 1.5 cm thick, apex rounded to slightly emarginate; seed cavity ellipsoid to slightly ovoid, 2.5-4.6 cm long, basal wing narrowed toward base, to 2 cm long.

GENERAL DISTRIBUTION: Costa Rica, Panama, northern South America, and Jamaica, St. Vincent, and Trinidad in the West Indies.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!.

NOTE: Known only from the Guilding collection of 1822.

HIPPOCRATEA L.

Hippocratea L., Sp. Pl. **2:** 1191. 1753.

Syn.: *Coa* P. Miller, Gard. Dict. abr. ed. 4. 1754, nom. illegit. for *Hippocratea* L.

Woody vines; young branchlets usually opposite, densely puberulent. Leaves opposite; blades crenate-serrate or less often subentire, chartaceous to subcoriaceous. Inflorescences paniculate cymes, many-flowered, densely brown-puberulent, pedunculate. Flowers congested toward apices of ultimate branchlets or borne laterally along branchlets; petals spreading, green to whitish, transversely barbate within; disk conspicuous, fleshy, conical-pulvinate, puberulent; stamens 3, filaments often adnate to upper margin of disk; ovary completely hidden within disk, style long (relative to *Pristimera* and *Cuervea*), subulate, stigmas inconspicuous. Fruits flattened; seeds usually 5 or 6, flattened, seed cavity coriaceous, large basal wing membranous with conspicuous median nerve.

TYPE: *Hippocratea volubilis* L.

As currently circumscribed, sensu Smith (1940), this is a monotypic genus confined to the New World tropics. It ranges from southern Florida and central Mexico, through the West Indies and Central America, to northern Argentina-southern Brazil. Prior to Miers (Trans. Linn. Soc. London **28:** 319-432. 1872) and Smith, all species with capsular fruits were included in *Hippocratea*, and as such its distribution was pantropical. Smith discusses the current concepts of the genus and his reasons for 'lumping' the numerous previously described species and excluding the Old World taxa. His interpretation of a monotypic genus is followed here.

Hippocratea volubilis L., Sp. Pl. **2:** 1191. 1753. FIGURE 51.

Lectotype: Plum., Nov. Pl. Amer. 8, *t. 35.* 1703; designated by A. C. Smith, Brittonia **3:** 364. 1940.

Syn.: *Hippocratea scandens* Jacq., Enum. Syst. Pl. 12. 1760, nom. illegit. for *Hippocratea volubilis* L.

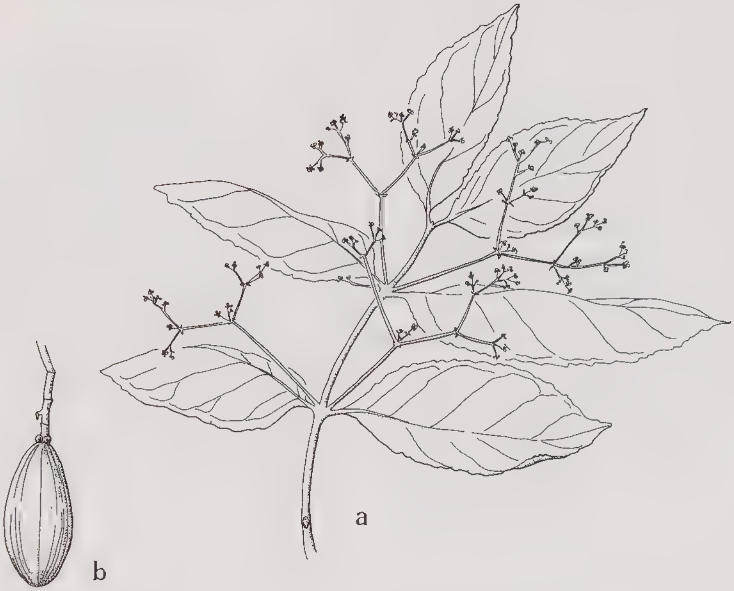
Hippocratea obcordata Lam., Tabl. Encycl. **1:** 100, *t. 28, fig. 1.* 1791. (Type: Jacq., Select. Stirp. Amer. Hist. *t. 9.* 1763.)

Hippocratea plumieri Miers, Trans. Linn. Soc. London **28:** 336. 1872. (Type: Grenada, *Masson s.n.* (holotype, BM).)

Hippocratea swartziana Miers, Trans. Linn. Soc. London **28:** 338. 1872. (Syntypes: St. Lucia, *Anderson s.n.* (K); St. Domingo, *Swartz s.n.* (BM).)

Leaves with petioles 3.5-12 mm long, canaliculate; blades variously shaped, elliptic to ovate or ovate-lanceolate to oblong-lanceolate, 3.8-15.4 × 1.6-6.9 cm, base acute to obtuse, apex acute to acuminate, less often obtuse, glabrous. Inflorescences with peduncles to 4.7 cm long. Flowers with sepals broadly ovate to deltoid, to 0.75 mm long, apex rounded, puberulent; petals oblong to oblong-elliptic, 2-2.75 mm long, apex subacute, puberulent, margin ciliate, transversely barbate within ca. 1 mm below apex; disk to 1.5 mm high; ovary deeply imbedded within disk. Fruits oblong-elliptic to oblong-obovate, 4.3-5.9 × 2.8-3.4 cm, apex rounded to emarginate; seed cavity obliquely ellipsoid, to 2.9 cm long, wing oblong to obovate, ca. as long as seed cavity.

GENERAL DISTRIBUTION: As for the genus.



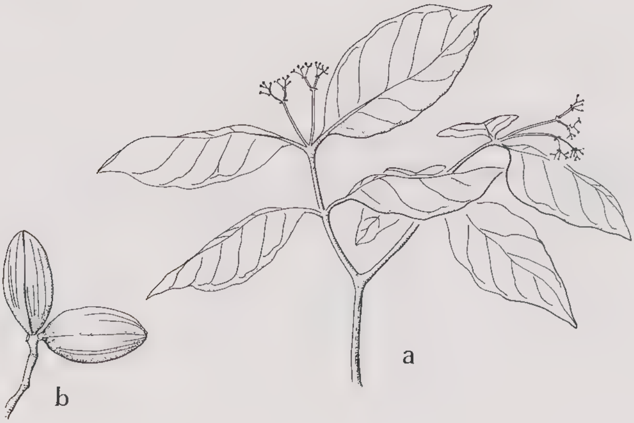


FIGURE 51 (upper). *Hippocratea volubilis*: a, flowering branch, × 0.45; b, fruit, × 0.45. FIGURE 52 (lower). *Pristamera caribaea*: a, habit, × 0.45; b, fruit, × 0.45.

DISTRIBUTION IN LESSER ANTILLES: Antigua, Guadeloupe!, Dominica!, Martinique!, St. Lucia, Grenada!.

COMMON NAMES: Liane z'amande, bois z'amande, liane rouge.

PRISTIMERA Miers

Pristimera Miers, Trans. Linn. Soc. London **28:** 360. 1872; emend. A. C. Smith, Brittonia **3:** 367. 1940.

Lianas, glabrous throughout. Leaves opposite; blades subentire to crenate-serrate, papyraceous to chartaceous. Inflorescences many-flowered, dichotomously multi-branched, corymbiform cymes, pedunculate. Flowers < 5 mm in diameter, bracteolate; disk inconspicuous, annular, fleshy; stamens 3, filaments suberect; ovary exposed, style short, stigmas obscure. Fruits flattened or slightly convex; seeds 2 to 8, ± flattened, seed cavity coriaceous, large basal wing membranous, distally thickened, with median nerve.

LECTOTYPE: *Pristimera verrucosa* (Kunth) Miers. (See A. C. Smith, Brittonia **3:** 368-370. 1940).

A tropical American genus of nine species (although Airy-Shaw (1973) indicates several species in East Asia and Indomalesia), occurring in Central America, the West Indies, and South America to northern Argentina-southern Brazil.

Pristimera caribaea (Urban) A. C. Smith, Brittonia **3:** 378. 1940.
FIGURE 52.

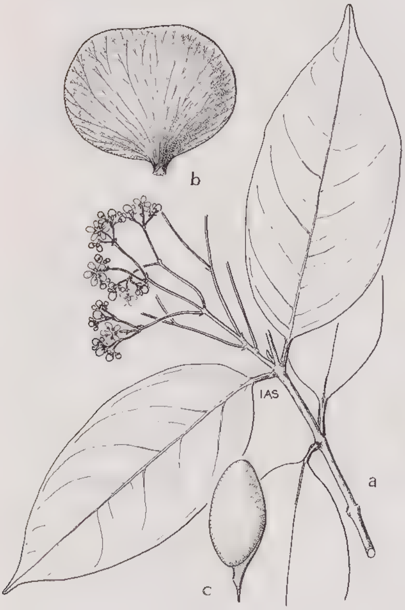
Basionym: *Hippocratea caribaea* Urban, Symb. Antill. **6:** 55. 1909.
Lectotype: Puerto Rico, *Eggers 700* (B, presumably destroyed; isolectotype, US, photo at A!, GH!); designated by A. C. Smith, Brittonia **3:** 380. 1940.
Syn.: *Hippocratea volubilis* L. var. *caribaea* (Urban) Stehlé & Quentin, Fl. Guadeloupe **2**(1): 177. 1938.

Leaves with petioles 3-9 mm long; blades narrowly elliptic to ovate-elliptic, 4.2-10.4 × 1.4-4.6 cm, base acute to less often obtuse or rounded, apex acute to gradually acuminate. Inflorescences with peduncles 2-10 mm long. Flowers with sepals broadly ovate to suborbiculate, 0.3-0.7 mm long, erose to ciliate; petals broadly elliptic to suborbiculate, 1.5-2 mm long, entire to obscurely erose, white to yellow or yellow-green; disk ca. 0.1-0.2 mm high; style extremely short, to ca. 0.3 mm long. Fruits ellipsoid to obovoid, 3-4.5 × 1.35-2.8 cm, apex subacute to obtuse; seed cavity obliquely ellipsoid, ca. 1.3 cm long, basal wing elliptic, 2(-3) cm long.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, the Lesser Antilles, and British Guiana.

DISTRIBUTION IN LESSER ANTILLES: Antigua, Guadeloupe, Dominica, Martinique.

NOTE: The description is based on specimens exclusive of the Lesser Antilles as none of that material could be located.



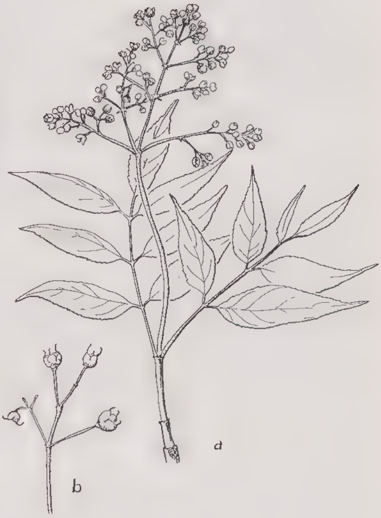


FIGURE 53 (left). *Cuervea kappleriana*: a, flowering branch, × 0.3; b, fruit, × 0.3; c, seed, × 0.3. FIGURE 54 (right). *Turpinia occidentalis*: a, flowering branch, × 0.3; b, fruiting branch, × 0.3.

STAPHYLEACEAE

by George Staples

STAPHYLEACEAE Lindley, Syn. Brit. Fl. 75. 1829.

Trees or shrubs, without milky sap. Leaves opposite (or alternate), mostly odd-pinnate; stipules paired. Inflorescence a raceme or panicle, often drooping. Flowers regular, perfect, (rarely unisexual, the plants then monoecious); sepals 5, imbricate; petals 5, imbricate; stamens 5, alternate with petals, attached below hypogynous disc, anthers bilocular, dehiscing longitudinally; ovary superior, (2- or)3-locular, ovules 1 to few on axile placentae, styles 2 or 3, free (or fused), stigmas truncate or capitate. Fruit a bladderlike capsule with open apex, or a leathery, indehiscent berry; seeds few, sometimes arillate, embryo straight, endosperm fleshy.

TYPE: *Staphylea L.*

A small family of 5 or 6 genera and perhaps 60 species, widely distributed in the temperate regions of the northern hemisphere, and also in the West Indies, Central and South America, and eastern Asia. The genus *Turpinia* was first described from the West Indies.

TURPINIA Vent.

Turpinia Vent., Mem. Cl. Sci. Math. Inst. Natl. France 1807(1): 3. July 1807, nom. cons.

Trees or shrubs. Leaves opposite, odd-pinnate (rarely simple), leaflets 5 to 7(to 11), opposite. Inflorescence a terminal panicle. Flowers small, fragrant; sepals persistent in fruit; petals sessile; hypogynous disc large, lobed or crenate; stamens with filaments flattened; ovary 3-lobed, carpels fused completely, ovules few to several, anatropous, styles 3, free or fused, stigmas capitate. Fruit a leathery, subglobose, 3-celled, indehiscent berry; seeds 3 to several, flat.

TYPE: *Turpinia paniculata* Vent.

Turpinia includes 30 to 40 species in tropical and temperate America and Asia. A single species is known from the Lesser Antilles.

Turpinia occidentalis (Sw.) Don, Gen. Hist. **2:** 3. 1832. FIGURE 54.

Basionym: *Staphylea occidentalis* Sw., Prodr. 55. 1788; Fl. Ind. Occid. **1:** 566. 1797. Type: Not designated.

Evergreen tree with open crown, to 15(-25) m tall, entirely glabrous; trunk straight, bark striate, grayish, pungent aromatic when cut; branches spreading, brittle when young, bark striate, dotted with whitish lenticels; twigs and stem tips terete, 4-6 mm in diameter, smooth, brownish, glabrous; leaf scars prominent, depressed obovate. Leaves decussate, petiolate, elliptic-ovate in outline, 18-27 × 12-14.5 cm; leaflets 7 or 9, petiolulate, these angulate, 2-10 mm long; blades ovate-lanceolate, 5.7-8.7 × 2.2-3.6 cm, base inequilateral, obtuse to truncate and ≤ decurrent on petiolule, apex attenuate-acuminate, margin subentire to serrulate, chartaceous, dotted with oil cells on both sides; stipules scalelike, obscure, deciduous and leaving faint annular scar at node between leaf scars. Panicles terminal, lax, trichotomous, pendant; bracts scalelike, minute. Flowers fragrant, dull white; pedicels striate, ca. 4-5 mm long; sepals unequal, outer 2 shorter than inner 3, broadly ovate, (2-)3-4 × 1.5-3 mm, apex rounded, margin entire to erose, chartaceous medially with membranous margins, greenish to whitish; petals unequal, outer 3 larger than inner 2, clawed, broadly elliptic to suborbiculate, 3-5 × 3-4 mm, base abruptly narrowed, apex rounded and slightly cucullate, margin erose, membranous, whitish; stamens equal, ca. 5 mm long, filaments glabrous, anthers ellipsoidal, 2-locular, introrse, longitudinally dehiscent; hypogynous disc lobed, protruding between filament bases, persisting and visible in fruit; ovary ovoid-conical, 3-lobed, ca. 1.5 mm tall, styles free below, connate apically, 2-3 mm long, stigma 3-lobed, flat, papillose, < 1 mm across. Berries broadly obovoid or subglobose, 3-celled, 1.2-1.5 × 1.2-1.4 cm, apex 3-lobed or 3-pointed with persistent styles, leathery, tan to brownish, smooth to coarsely wrinkled; seeds 1 to 3 per locule, trigonous or carinate when few, increasingly flattened as number of seeds per locule increases, 5-6(-9) × 3-4(-6) mm, shiny tan, smooth, hard-shelled.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, and northwestern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada.

COMMON NAMES: Bois pilori, bois lat, bois sureau, bois-vignot.

SAPINDACEAE

SAPINDACEAE A. L. Juss., Gen. Pl. 246. 1789.

Trees, shrubs, woody or herbaceous vines, climbing plants often with tendrils that are part of inflorescence or represent sterile inflorescences. Leaves alternate; blades simple, ternate or biternately, pari- or imparipinnately compound; stipulate or not. Inflorescences axillary or terminal, racemose or paniculate, or thyrsoid in racemes or panicles. Flowers regular or irregular, unisexual or bisexual (plants commonly polygamodioecious); sepals 5, free or fused, imbricate, often unequal; petals 5 or wanting, free, commonly clawed, often with internal basal scale; disc present or absent, annular, lobed or asymmetrical; stamens 8 to 10 in 2 whorls, filaments free, often pubescent; ovary superior, 3-carpellate, 1- to 3-locular, ovules 1 or 2 in each locule, style terminal, simple or divided. Fruit a capsule, berry, or drupe; seeds globose or compressed, often arillate.

TYPE: *Sapindus* L.

A family comprising about 150 genera and 2000 species found in the tropics and subtropics worldwide.

CULTIVATED TAXA

Koelreuteria paniculata Laxm. Once cultivated on St. Vincent.

Lepisanthes tetraphylla (M. Vahl) Radlk. Once cultivated at the St. Pierre Botanic Garden, Martinique.

Litchi sinensis Sonn. Introduced to St. Vincent in 1785 and later cultivated on Guadeloupe.

Mataybea arborescens (Aublet) Radlk. Introduced from the Guyanas to St. Vincent by Alexander Anderson.

Schleichera oleosa (Lour.) Merr. Reported from Antigua by Dandy.

Serjania polyphylla (L.) Radlk. Reported by Vélez from St. Martin, but cannot be confirmed.

Talisea oliviformis (Kunth) Radlk. Once cultivated at St. Vincent Botanic Garden.

KEY TO THE GENERA

1. Climbing plants, usually with tendrils.
    2. Fruit a thick-walled capsule, usually red; seeds black, with conspicuous white fleshy aril .... *Paullinia*
    2. Fruit a membranaceous capsule; seeds with aril small or lacking.
        3. Fruits inflated; leaflets more than 3 .... *Cardiospermum*
        3. Fruits scarcely inflated, carpels samaroid bearing the seeds; leaflets 3 .... *Urvillea*
1. Trees or shrubs, without tendrils.
    4. Leaves simple, often resinous; fruit a winged capsule .... *Dodonaea*
    4. Leaves compound, never resinous; fruits not winged.
        5. Leaves 3-foliolate.
            6. Petioles slightly winged; fruit a drupe; leaflets obovate to oblanceolate, apex commonly rounded; inflorescences paniculate, few-flowered.... .... *Hypelate*
            6. Petioles not winged; fruit somewhat fleshy; leaflets mostly elliptic, apex acute to acuminate; inflorescences racemose, flowers numerous..... .... *Allophyllus*
        5. Leaves paripinnate, lacking terminal leaflet.
            7. Fruit a dehiscent capsule.
                8. Pericarp thick and fleshy, usually bright red, fruits over 5 cm long; aril large, cream-colored; inflorescence a simple or branched raceme (Cultivated) .... *Blighia*
                8. Pericarp leathery, brown, fruits < 2 cm dia.; inflorescence of thyrses in panicles .... *Cupania*
            7. Fruits indehiscent, dry or fleshy.
                9. Pericarp leathery, green; seed globose, large; aril fleshy; leaflets mostly two pairs .... *Melicoccus*
                9. Pericarp thin, brownish-yellow.
                    10. Leaflets 3 or more pairs, asymmetrical; inflorescences thyrsoid panicles; fruits usually with 1 or 2 smaller aborted carpels, flesh saponaceous .... *Sapindus*
                    10. Leaflets mostly two pairs; inflorescences loose panicles; drupe purple, pulp orange, not saponaceous .... *Exothea*

ALLOPHYLLUS L.

Allophyllus L., Sp. Pl. **1:** 348. 1753.

Trees or shrubs. Leaves petiolate, not winged; blades mostly 3-foliolate, leaflets subsessile; exstipulate. Inflorescences axillary, racemose, simple or compound, many-flowered. Flowers irregular, small, unisexual or occasionally bisexual (plants polygamodioecious); sepals 4, opposite and paired; petals 4, pubescent inside, scale short, usually bifid; disc acentric; filaments pubescent, fertile stamens exserted; ovary and staminodes slightly stalked, ovary eccentric, compressed, usually bilobed and 2-celled with one cell abortive, ovules 1 in each locule, styles 2 or 3, free or fused below. Fruit a leathery or fleshy drupe of one carpel, subtended by persistent calyx; seed one with short fleshy aril.

TYPE: *Allophyllus zeylanicus* L.

A widespread genus in tropical areas with nearly 250 species described. Leenhouts (Blumea **15:** 301-358. 1967) concluded that there was but a single variable species, which he called *A. cobbe* (L.) Rausch. This seems an extreme view and two species are recognized in the Lesser Antilles.

KEY TO THE SPECIES

Leaflets (sub)glabrous beneath; seeds glabrous . . . . *A. psilospermus*
Leaflets densely pilose beneath; seeds hairy . . . . *A. racemosus*

Allophyllus psilospermus Radlk., Sitzungsber. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. München **20:** 230. 1890, nom. nud.; **38:** 211. 1908.

Type: Martinique, *Hahn 1175 p.p.* (isotype, GH!).

Shrub or tree to 12 m tall. Leaves trifoliolate; petioles 3.6-7 cm long; leaflets elliptic to narrowly obovate, subsessile, median leaflet 11.4-21 × 4.2-8 cm, lateral leaflets 10.7-17.7 × 3.9-6.5 cm, base cuneate or acute, apex acuminate to caudate, margin crenate to serrulate, chartaceous, glabrous except for axillary tufts of hairs. Racemes unbranched, simple, puberulent. Flowers 2 mm in diameter, yellowish green; sepals glabrous or ciliolate; petals obovate, villose within. Drupes obovoid, 6-9 mm long, smooth, red; seeds ovoid-globose, compressed, 7-8 mm long, glabrous.

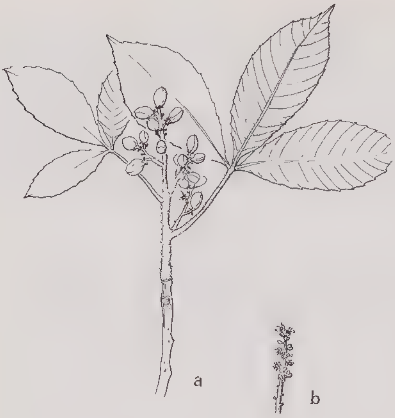
GENERAL DISTRIBUTION: Mexico to Panama.

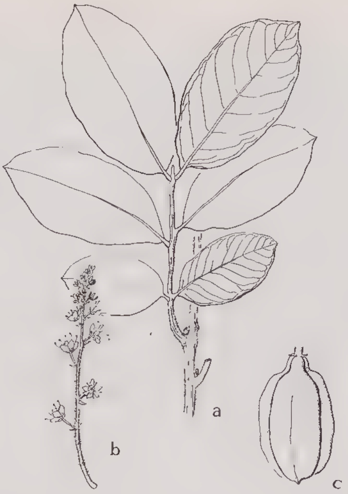
DISTRIBUTION IN LESSER ANTILLES: Martinique!.

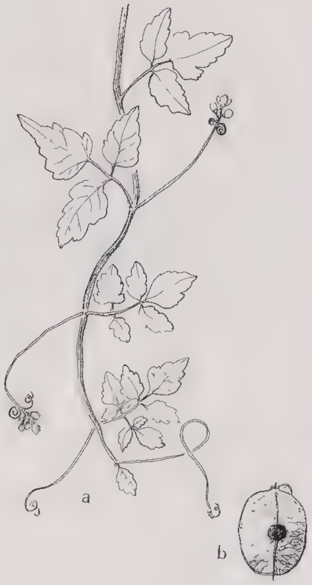
Allophyllus racemosus Sw., Prodr. 62. 1788. FIGURE 55.

Type: Hispaniola, *Swartz s.n.* (BM).
Syn.: *Schmidelia occidentalis* Sw., Fl. Ind. Occid. **2:** 665. 1798, renaming of *Allophyllus racemosus* Sw., non *S. racemosus* L. (1767).
Allophyllus occidentalis (Sw.) Radlk., Sitzungsber, Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. München **20:** 230. 1890.

Shrub or tree to 10 m tall, tomentose on young parts becoming glabrate. Leaves trifoliolate; petioles 2-6 cm long; leaflets elliptic to rhombic or oblanceolate, median leaflet 12.5-26 × 5-9.4 cm, lateral leaflets 11.3-26 × 4-9 cm, base cuneate to obtuse, apex acute to acuminate, margin serrate, glabrate above, pilose below. Racemes simple. Flowers 3-5 mm in diameter, whitish







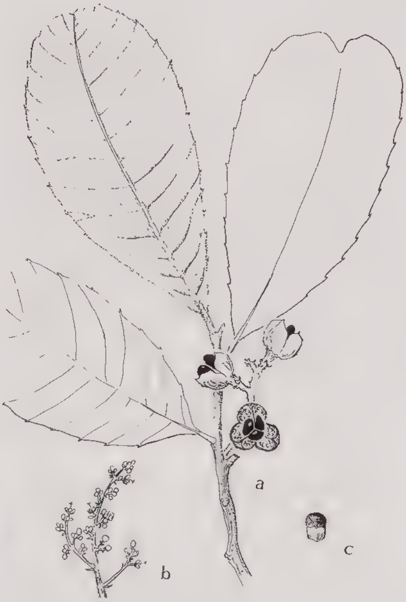


FIGURE 55 (upper left). *Allophyllus racemosus*: a, fruiting branch, × 0.3; b, inflorescence branch, × 0.3. FIGURE 56 (upper right). *Blighia sapida*: a, leaf, × 0.3; b, inflorescence branch, × 0.3; c, fruit, × 0.3. FIGURE 57 (lower left). *Cardiospermum corindum*: a, habit, × 0.3; b, open fruit, × 0.7. FIGURE 58 (lower right). *Cupania americana*: a, fruiting branch, × 0.3; b, partial inflorescence, × 0.3; c, seed with aril, × 0.3.

cream; sepals ovate-orbiculate, 1-1.5 mm long, tomentose outside; petals obovate, 1.5 mm long, pilose within; ovary minutely pilose. Drupes obovoid-globose, 6-8 mm long, red, sparsely pilose; seed to 4 mm long, pilose or hispid.

GENERAL DISTRIBUTION: Central America, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, St. Eustatius!, Nevis!, Montserrat, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Barbados.

COMMON NAMES: Café jaune, petit café, bois-négresse.

BLIGHIA König

Blighia König, Ann. Bot. (König & Sims) **2:** 571. 1806.

Trees. Leaves paripinnate, rachis not winged; exstipulate. Inflorescences axillary, racemose, simple or branched. Flowers unisexual and bisexual, (plants polygamous); sepals 5, imbricate; petals 5, bearing a large, lobed, basal scale inside; disc swollen, lobed; stamens 8, inserted within disc, filaments pilose; ovary 3-locular, conspicuously densely pubescent, ovules 1 in each locule, style elongate. Fruit a large 3-lobed capsule, 3-locular, dehiscent, often fleshy; seeds globular, aril large.

TYPE: *Blighia sapida* König.

A genus of 7 species native to Africa.

Blighia sapida König, Ann. Bot. (König & Sims) **2:** 571, *t. 16.* 1806.
FIGURE 56.

Type: Not determined.

Trees to 7 m tall. Leaves mostly with 4 pairs of leaflets, leaflets opposite, short petiolulate; blades elliptic or oblong, 4-21 × 3-8 cm, base cuneate, acute, or obtuse, apex obtuse to short-acuminate, margin entire, glabrous above, tomentose beneath. Racemes simple or compound, tomentose. Flowers with sepals ovate; petals ovate-oblong, 3.5-5.5 mm long, white, villous on both surfaces, ciliate on margins, scales to 3 mm long, 3-lobed; disc densely villose; filaments of fertile stamens 7-8 mm long; style to 8 mm long, pistillode rudimentary. Capsules oblong-obovate, 6-10 cm long, 6-7 cm in diameter, base narrowed, apex rounded and 3-lobed, pericarp thick and fleshy, red to red-orange, glabrous outside, densely white-pubescent inside; seeds globose, 1.7 cm in diameter, black, shiny, with a much larger fleshy, white or cream aril.

GENERAL DISTRIBUTION: Native to tropical Africa, introduced and variously cultivated in the New World.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Dominica!, Martinique!, St. Lucia!, Barbados!.

COMMON NAMES: Akee, aki, cervelle végétale, ris-de-veau.

CARDIOSPERMUM L.

Cardiospermum L., Sp. Pl. **1:** 366. 1753.

Herbaceous or suffrutescent climbers. Leaves biternate to decompound; blades subentire to crenate or serrate; stipulate. Inflorescences axillary, corymbose, bearing 1 or 2 tendrils at apex of peduncle. Flowers slightly zygomorphic, unisexual or bisexual (plants polygamodioecious); sepals 4, the two outer smaller; petals 4, unequal, basal scale bilobed; disc undulate or clearly lobed; stamens 8, filaments often pilose; ovary 3-locular, ovules 1 in each locule, style short, 3-lobed. Fruit a papery capsule, inflated, trigonous, 3-seeded, the valves often caducous; seeds globose, hilum prominent, aril small or lacking.

TYPE: *Cardiospermum halicacabum* L.

A genus of 15 species of tropical areas worldwide.

KEY TO THE SPECIES

1. Flowers 8-10 mm long; disc appendages corniform; fruits 6-7 cm long, glabrous (Cultivated) . . . . *C. grandiflorum* Sw.
1. Flowers 3-6 mm long; disc appendages short and rounded; fruits 1-4 cm long, usually pubescent.
    2. Sepals usually hispid; fruits fusiform to subglobose; hilum semicircular to emarginate . . . . *C. corindum*
    2. Sepals glabrous or marginally pilose; fruit obovoid to subglobose; hilum bilobed to cordiform.
        3. Fruits subglobose-pyriform and trigonous, ca. 2-3 cm long . . . . *C. halicacabum*
        3. Fruits depressed-obovoid, strongly 3-winged or 3-angled, ca. 1 cm long . . . . *C. microcarpum*

Cardiospermum corindum L., Sp. Pl. ed. 2, **1:** 526. 1762. FIGURE 57.

Type: Not determined.

Subherbaceous perennial climber, to 2 m tall. Leaves biternate; petioles 3-26 cm long; leaflets petiolulate, blades ovate to broadly elliptic, median leaflet the largest, 1.7-5.7 × 1.1-3.3 cm, base decurrent on petiolule, apex acute to obtuse or mucronulate, margin crenate. Inflorescences 4-8.7 cm long, to 5.5-13 cm in fruit. Flowers 4-6 mm long, whitish yellow; sepals hispid; petals obovate, gland-dotted within; disc appendages short and rounded; filaments pilose basally; ovary pilose. Fruits fusiform or subglobose, 2-3 × 1-2.1 cm, chartaceous, reddish tan to stramineous; seeds globose, 3-4 mm long, black, hilum semicircular to emarginate, whitish.

GENERAL DISTRIBUTION: General in tropical areas.

Distribution in Lesser Antilles: Anguilla!, St. Barts!, Antigua, St. Kitts, Guadeloupe, La Désirade, Martinique!, St. Lucia, St. Vincent!, the Grenadines!.

Common name: Faux persil.

Cardiospermum halicacabum L., Sp. Pl. **1:** 366. 1753.

Type: Not determined.

Herbaceous climber, to 5 m tall. Leaves biternate or pinnatifid; petioles 1.3-6 cm long; leaflets rhombic, elliptic, ovate, or lanceolate, the median largest, 3.8-4.7 × 1.8-2.8 cm, base abruptly narrowed, cuneate to acute, apex acute to acuminate, margin serrate or incised. Inflorescence rhachis 1.2-6.4 cm long, in fruit to 9 cm. Flowers 3-4 mm long, white; sepals pilose on margins or glabrous; petals appendaged at base; disc appendages short and rounded; filaments pilose. Fruits subglobose to obovoid or triquetrous, 2.3-3.1 × 2.3-3.3 cm, chartaceous, stramineous to reddish-tan, puberulous; seeds globose, 5 mm in diameter, black, hilum cordate-bilobed, white.

General distribution: Worldwide in tropical areas and commonly cultivated.

Distribution in Lesser Antilles: St. Martin, St. Barts, Antigua!, Saba, St. Eustatius, St. Kitts, Guadeloupe!, Martinique, St. Vincent.

Common names: Balloon vine, persil bâtard, liane-persil, liane de barettes.

Cardiospermum microcarpum Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 81 (ed. folio), 104 (ed. quarto). 1821.

Type: Venezuela, San Fernando de Atabapo, *Humboldt & Bonpland 1184* (holotype, P; IDC 6209. 121: II. 1, photo!).

Syn.: *Cardiospermum halicacabum* L. var. *microcarpum* (Kunth) Blume, Rumphia **3:** 183. 1847.

Herbaceous annual climber to 2 m tall. Leaves biternate; petioles 1-5.3 cm long; leaflets sessile or petiolulate, blades ovate, elliptic, rhombic, or lanceolate, the median leaflet largest, 2.8-4.4 × 1.5-2.3 cm, base truncate, rarely attenuate to petiolule, apex acute to acuminate, margin coarsely dentate to incised. Inflorescence rachis 3.7-6.6 cm long, to 9.2 cm in fruit. Flowers to 4 mm long, white to straw-colored; sepals obovate, 2.3 mm long, glabrous; petals obovate, 2.1-2.5 mm long; disc appendages short and rounded; stamens 8, filaments pilose; ovary pilose. Fruits depressed-obovoid, 0.9-1.3 × 1.5-2.2 cm, strongly 3-angled or -winged, apex truncate, chartaceous, stramineous, puberulent; seeds globose, to 3 mm in diameter, blue-black, hilum bilobed, white.

General distribution: Widespread in all tropical areas.

Distribution in Lesser Antilles: St. Martin, Barbuda!, Antigua!, St. Eustatius!, St. Kitts, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados.

COMMON NAMES: Heart seed, balloon vine, wild parsley, bonné kawé, bonnet caré, liane persil, chapeau carré.

CUPANIA L.

Cupania L., Sp. Pl. **1:** 200. 1753.

Trees or shrubs. Leaves petiolate; blades paripinnate, leaflets alternate, petiolulate or subsessile, entire to dentate; exstipulate. Inflorescences subterminal thyrses in a panicle. Flowers small, regular, unisexual and bisexual (plants polygamous); sepals 5, imbricate; petals 5, bearing 2 broad scales below; disc annular; stamens 8, inserted within disc, filaments often pubescent; ovary 3-locular, ovules 1 per locule, style short. Fruit a subglobose to trigonous capsule with leathery pericarp, usually densely tomentose; seeds 3, shiny and smooth, aril present.

TYPE: *Cupania americana* L.

A genus of about 45 species in tropical America.

KEY TO THE SPECIES

1. Capsules subglobose-pyriform, obtusely 3-angled .... *C. americana*
1. Capsules triangular-tricoccate, acutely 3-angled.
    2. Disc tomentose; capsules turbinate-triangular .... *C. triquetra*
    2. Disc glabrous or sparsely pilose; capsules tricoccate, strongly depressed apically .... *C. rubiginosa*

Cupania americana L., Sp. Pl. **1:** 200. 1753. FIGURE 58.

Type: Not determined.

Tree to 20 m tall, young stems tomentose. Leaves 12-40 cm long with petioles 2-6 cm long; leaflets 4 to 8, petiolules 3-7 mm long, blades obovate to elliptic-oblong, 20-25 × 4-10 cm, base attenuate, apex rounded to retuse, margin dentate or rarely entire, coriaceous, glabrous above, more or less tomentose beneath. Flowers whitish; sepals ovate-suborbiculate, 2.5 mm long, densely setose and ciliate; petals obovate, unguiculate, crenate and pilose, scales large; disc hirsute; fertile stamens 5 mm long, filaments pilose, sterile stamens with filaments 1-2 mm long; ovary tomentose; pistillode minute, densely pubescent. Capsules subglobose-pyriform, 1.8-2 cm long, obtusely 3-angled, short-stipitate, apex slightly depressed, reddish tomentose inside and out; seeds obovoid-subglobose, to 1 cm long, black, aril covering lower third, yellow.

GENERAL DISTRIBUTION: Greater Antilles, Venezuela, Colombia.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia, Barbados.

COMMON NAME: Candlewood tree, zyeux à crabes.

Cupania rubiginosa (Poiret) Radlk., Sitzungsber. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. München **9:** 522, 566. 1879.

Basionym: *Robinia rubiginosa* Poiret *in* Lam., Encycl. **6:** 227. 1804.
Type: Trinidad, probably a *von Rohr* or *Ryan* collection sent by Vahl to A. L. Jussieu (holotype, P-JU #11397; IDC 6206. **844:** I. 7, photo!).
Syn.: *Cupania poiretii* Kunth, Ann. Sci. Nat. (Paris) **1:** 458. 1824, nom. illegit. based on same type as *Robinia rubiginosa* Poiret.

Shrub or tree to 15 m tall, young stems densely red-tomentose. Leaves 10-40 cm long with petioles 3-5 cm long; leaflets 6 to 10, obovate, ovate, or ovate-oblong, 5-20 × 2.5-9 cm, base acute, apex obtuse, margin often revolute, repand-dentate, coriaceous, glabrous above, reddish tomentose beneath. Inflorescences to 25 cm long. Flowers whitish; sepals ovate, to 2 mm long, tomentellous within; petals broadly ovate, unguiculate, to 2 mm long, margin villous; disc glabrous or sparsely pilose; filaments pilose; ovary hirsute-tomentose. Capsules tricoccate, short-stipitate, to 1.5 cm long, apex strongly depressed, velutinous-tomentose outside, densely long-pilose within; seeds reddish-brown, completely covered by aril.

GENERAL DISTRIBUTION: Guyana, northern Brazil.

DISTRIBUTION IN LESSER ANTILLES: Montserrat, Guadeloupe, Marie Galante!.

Cupania triquetra A. Rich. *in* Sagra, Hist. Fis. Cuba, Bot. **10:** 119. 1845.

Type: St. John, *Richard s.n.* (P).

Tree to 20 m tall, young stems tomentellous becoming glabrate. Leaves 12-25 cm long with petioles 4-5 cm long; leaflets 4 to 8, petiolules 3-5 mm long, blades obovate, 5-15 × 2.5-7 cm, base cuneate, apex obtuse or emarginate, margin subentire to repand-dentate, coriaceous, glabrous above and tomentellous beneath. Flowers whitish; sepals ovate, 2-3 mm long, woolly; petals unguiculate, 2-3 mm long, base and margin pubescent; disc tomentose; filaments pubescent at base; ovary tomentose. Capsules turbinate-triangular, to 2.5 × 2 cm, base conspicuously stipitate, brownish tomentellous outside, whitish-villose inside; seeds obovoid, 1.5 × 0.9 cm, reddish-brown, arillate at base.

GENERAL DISTRIBUTION: Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique, St. Lucia!.

COMMON NAMES: Bois cha taigne, bois ramon, caconnier rouge, caconnier blanc.

DODONAEA Miller

Dodonaea Miller, Gard. Dict. abr. ed. **4:** 28. 1754.

Shrubs or small trees. Leaves alternate, simple, usually resinous; exstipulate. Inflorescences paniculate. Flowers unisexual and bisexual (plants polygamous or polygamodioecious); sepals 3 to 5, subequal; petals wanting; disk wanting; stamens 5 to 8, filaments much shorter than anthers, glabrous, free. Ovary of 3 to 5 united carpels, trigonous, ovules 2 in each locule, styles united; staminodes rudimentary, pistillode minute. Fruits capsular, membranaceous, 2- to 6-angled, the angles winged; seeds subglobose or flattened, exarillate.

TYPE: *Dodonaea viscosa* (L.) Jacq. (*Ptelea viscosa* L.).

A widespread tropical genus of 50 species, most numerous in Australia. Treatments have varied with some authors recognizing few species with many varieties and formae and others accepting numerous species. For further information see E. E. Sherff, Amer. J. Bot. **32:** 202-214. 1945, and Publ. Field Mus. Nat. Hist., Bot. Ser. **23:** 269-317. 1947; H. Lippold, Wiss. Beitr. Friedr. Schiller Univ. Jena Beitr. Phytotax. **6:** 79-126. 1978; P. W. Leenhouts, Blumea **28:** 271-289. 1983, and J. G. West, Brunonia **7:** 1-194. 1984.

KEY TO THE SPECIES

1. Fruits mostly 2-winged, commonly straw-colored; flowers mostly bisexual; leaves mostly oblong-oblanceolate, 2.25 to 3.75 times as long as wide, primary veins more prominent than tertiary reticulations . . . . *D. viscosa*
1. Fruits mostly 3-winged, commonly red or purplish; flowers commonly unisexual; primary veins inconspicuous or scarcely more evident than tertiary reticulations.
   2. Fruit wings adnate to style base, sinus shallow, not reaching body of fruit; leaves mostly obovate, apex rounded or nearly truncate, widest above middle, 2 to 4 times as long as wide . . . . *D. elaeagnoides*
   2. Fruit wings not adnate to style base, sinus reaching body of fruit; leaves mostly narrowly lanceolate-elliptic, apex acute, rarely rounded and apiculate, mostly 3 to 6.5 times as long as wide . . . . *D. angustifolia*

Dodonaea angustifolia L. f., Suppl. Pl. 218. 1782.

Type: LINN 495.4 and 495.5 ex Leenhouts, or LINN-Sm. 673.3 (IDC 5073. **308:** III. 4, photo!) ex J. G. West.

Syn.: *Dodonaea viscosa* (L.) Jacq. var. *angustifolia* (L. f.) Benth. *in* Benth. & Mueller, Fl. Austral. **1:** 476. 1863.

Dodonaea viscosa (L.) Jacq. forma *angustifolia* (L. f.) Sherff, Amer. J. Bot. **32:** 214. 1945.

Dodonaea viscosa (L.) Jacq. ssp. angustifolia (L. f.) J. G. West, Brunonia **7:** 39. 1984.

Small tree or shrub, to 6 m tall. Leaves mostly narrowly lanceolate-elliptic, 4-9 × 1-2.5 cm, 3 to 6.5 times as long as wide, base cuneate or acute, apex acute to rounded, pergamentaceous, primary veins inconspicuous or scarcely more evident than tertiary reticulations, glands conspicuous on both sides, commonly resinous. Inflorescences mostly glandular, varnished. Flowers unisexual or bisexual (plants polygamous or dioecious or andromonoecious); sepals 4, scar under fruit annular to lobed; pistil mostly 2-winged, style cleft at apex. Fruit body 7-14 mm high, glandular, wings 3.5-6 mm wide, not adnate to style base and with sinus reaching fruit body, stiff, mostly reddish or pale brown.

GENERAL DISTRIBUTION: Bahamas, Greater Antilles, Mexico, Central America, and South America.

DISTRIBUTION IN LESSER ANTILLES: St. Lucia!.

NOTE: Leenhouts regards this species as an inland plant and at higher elevations. The single collection from St. Lucia was made at the summit of Petit Piton at an elevation of 2,438 ft.

Lippold argued that *D. angustifolia* L. f. was a plant of South India and that *D. angustifolia* Sw. (Observ. Bot. 150. 1791) was a later homonym and not the same taxon. J. G. West selected as a lectotype the fruiting specimen from the herbarium of Linnaeus filius, which has his annotation, and indicated a worldwide distribution for this taxon as a subspecies of *D. viscosa*. Leenhouts had previously chosen a specimen from the Linnaean herbarium as the lectotype.

Dodonaea elaeagnoides Rudolphi ex Ledeb. & Alderstam, Diss. Bot. Pl. Doming. 18. 1805; ex Lippold, Wiss. Beitr. Friedr. Schiller Univ. Jena Beitr. Phytotax. **6:** 95. 1978.

Type: Santo Domingo, *Poiteau s.n.* (B-W #7315; IDC 7440. 503: II. 7, photo!).
Syn.: *Dodonaea ehrenbergii* Schldl., Linnaea **18:** 36, 52. 1844. (Type: Santo Domingo, *Ehrenberg s.n.*)

Shrub to 3 m tall. Leaves obovate, 2.5-8 × 1-2.25 cm, 1.75 to 4.5 times as long as wide, widest 1/4 distance from apex, apex rounded to nearly truncate, sometimes apiculate or emarginate, chartaceous, not very glandular nor varnished. Inflorescences glabrous, variably glandular. Flowers unisexual (plants mostly dioecious, rarely monoecious); sepals 4; stamens 6 or 7, staminodes wanting in pistillate flowers; pistil 2-merous, sometimes 3-merous, style 4.5-5 mm long, slightly lobed at apex. Fruit body 4-7 mm high, wings 2-4 mm wide at apex, adnate to style base for 1.5-2.5 mm, glabrous, not conspicuously glandular, brownish to reddish.

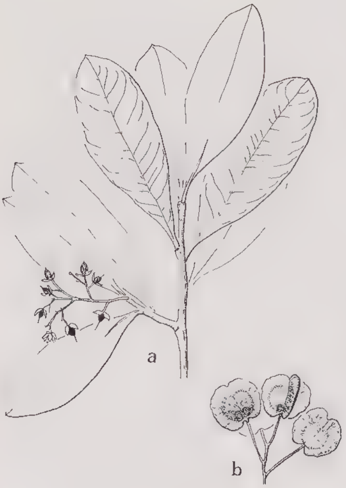
GENERAL DISTRIBUTION: Florida, Bahamas, Greater Antilles.

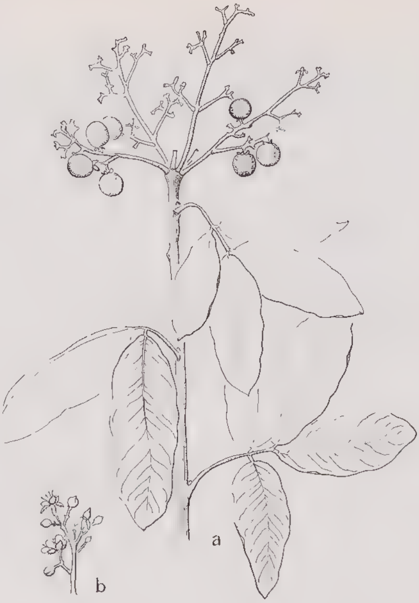
DISTRIBUTION IN LESSER ANTILLES: Barbuda!, St. Eustatius!, La Désirade, Grenada.

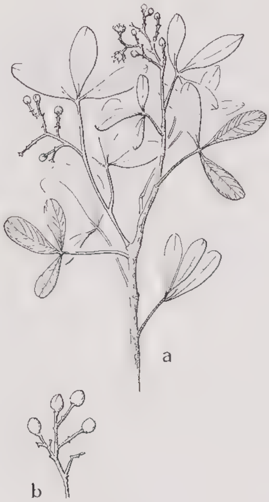
Dodonaea viscosa (L.) Jacq., Enum. Syst. Pl. 19. 1760. FIGURE 59.

Basionym: *Ptelea viscosa* L., Sp. Pl. **1:** 118. 1753.
Type: Herb. Sloane vol. 97, lectotype (ex Leenhouts); or Plum., Pl. Amer. *t. 248, fig. 2.* 1760 (ex Lippold).

Shrub or small tree to 3 m tall. Leaves oblanceolate, oblong-oblanceolate, or obovate, 5-12.5 × 1.5-4.5 cm, 2.25 to 3.75 times as long as wide, widest slightly above middle, base cuneate, apex rounded or apiculate or acute, thin pergamentaceous, primary veins more prominent than tertiary reticulations, glands inconspicuous, not drying varnished. Inflorescences hardly glandular. Flowers bisexual; sepals 4, caducous, scar under fruit deeply lobed to nearly annular; pistil 2- or 3-merous, style only slightly cleft. Fruit body







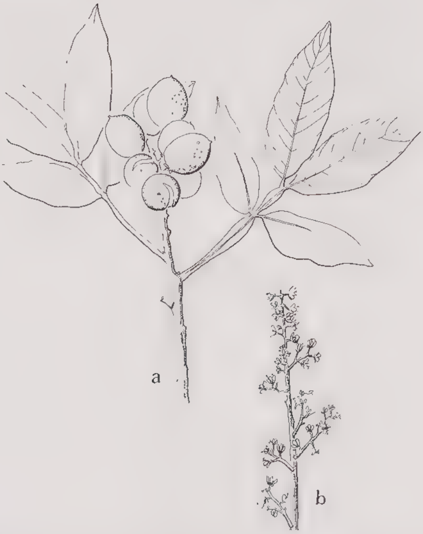


FIGURE 59 (upper left). *Dodonaea viscosa*: a, flowering branch, × 0.3; b, fruit, × 0.3. FIGURE 60 (upper right). *Exothea paniculata*: a, fruiting branch, × 0.3; b, partial inflorescence, × 0.3. FIGURE 61 (lower left). *Hypelate trifoliata*: a, flowering branch, × 0.3; b, fruit, × 0.3. FIGURE 62 (lower right). *Melicoccus bijugatus*: a, fruiting branch, × 0.3; b, partial staminate inflorescence, × 0.3.

9-13 mm long, not conspicuously glandular, glabrous, wings 4-6 mm wide, straw-colored; seeds globose, 1.5 mm in diameter, black.

General distribution: Mostly coastal; occurring in Florida, the Bahamas, Greater Antilles, Central and South America.

Distribution in Lesser Antilles: St. Martin!, Barbuda!, Antigua!, St. Eustatius!, Guadeloupe!, Marie Galante!, Martinique!, Grenada!.

Common names: Hop shrub, wild hop bush, mangle-oseille.

EXOTHEA Macfad.

Exothea Macfad., Fl. Jamaica **1:** 232. 1837.

Trees or shrubs. Leaves alternate, paripinnate with mostly 2 pairs of leaflets; exstipulate. Inflorescences loose panicles. Flowers small, slightly irregular, unisexual or bisexual (plants dioecious or polygamous); sepals 5, imbricate, pubescent on both surfaces, persistent and retrorse in fruit; petals 5, short-clawed, without scales; stamens 7 or 8, those of pistillate flowers shorter than petals; ovary 2-celled, ovules 2 or 3 in each locule, style short. Fruit a globose, purple drupe with thin pericarp and orange pulp; seed exarillate.

Type: *Exothea oblongifolia* Macfad. = *Exothea paniculata* (A. L. Juss.) Durand.

A genus of three species in Florida, Mexico (?), Central America, and the West Indies.

Exothea paniculata (A. L. Juss.) Radlk. ex Durand, Index Gen. Phan. 81. 1888. Figure 60.

Basionym: *Melicocca paniculata* A. L. Juss., Mém. Mus. Hist. Nat. **3:** 187, *t. 5.* 1817. Type: Santo Domingo, *Poiteau s.n.* (lectotype, P-JU #11408A; IDC 6206. 845: I. 3, photo!).

Syn.: *Hypelate paniculata* (A. L. Juss.) Cambess., Mém. Mus. Hist. Nat. **18:** 32. 1829.
Exothea oblongifolia Macfad., Fl. Jamaica **1:** 232. 1837. (Type: Jamaica, *Macfadyen s.n.* (BM).)

Tree to 20 m tall. Leaves with petioles 0.5-2.5 cm long; leaflets 2, 4, or 6, alternate, oblong to elliptic-obovate, 5-13 cm long, base narrowed and nearly sessile, apex acute, obtuse, or emarginate, margin entire, shiny above, pale green beneath. Panicles terminal and axillary, to 14 cm long, pubescent. Flowers with sepals ovate, 3.5 mm long; petals oblong-ovate, 3 mm long, white, pubescent; disc annular or lobed, pubescent; stamens borne inside disc, fertile stamens 3 mm long, glabrous, sterile stamens 1.5 mm long; ovary slightly pubescent. Drupes globose, 10-13 mm in diameter.

General distribution: Florida, Bahamas, Greater Antilles, Guatemala, Belize.

Distribution in Lesser Antilles: St. Eustatius, La Désirade, Martinique!, St. Vincent!.

HYPELATE P. Browne

Hypelate P. Browne, Civ. Nat. Hist. Jamaica 208. 1756.

Trees or shrubs. Leaves alternate, 3-foliolate, petioles winged; exstipulate. Inflorescences axillary, paniculate, few-flowered. Flowers small, unisexual or bisexual (plants monoecious or polygamodioecious); sepals 5, imbricate; petals 5, without internal scales; disc annular, glabrous; stamens 8 to 10 in staminate flowers with glabrous filaments, minute or wanting in pistillate flowers; ovary 3-celled, ovules 2 in each locule, style short, stigma capitate. Fruit a red drupe; seed exarillate.

TYPE: *Hypelate trifoliata* Sw.

A monotypic genus of Florida and the West Indies.

Hypelate trifoliata Sw., Prodr. 61. 1788; Fl. Ind. Occid. **2:** 655. 1798. FIGURE 61.

Type: Not determined.

Shrub or tree to 10 m tall. Leaves with petioles 1-3.5 cm long, slightly winged above; leaflets sessile, obovate or oblanceolate, 2-5 × 1-2.5 cm, base cuneate, apex rounded or obtuse, occasionally emarginate or acute, margin entire, stiffly membranaceous, glabrous, shiny. Inflorescences 4-9 cm long. Flowers with sepals ovate, 2.5-3 mm long, ciliate; petals suborbiculate, 3 mm in diameter, white, ciliate; disc lobed; fertile stamens 3 mm long, glabrous, sterile stamens less than 1 mm long. Drupes ovoid, 5-7 mm in diameter, red turning black.

GENERAL DISTRIBUTION: Florida, Bahamas, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin.

COMMON NAME: Ironwood.

MELICOCCUS P. Browne

Melicoccus P. Browne, Civ. Nat. Hist. Jamaica 210. 1756.

Trees. Leaves alternate, paripinnate; leaflets 2 or 3 pairs, subopposite, subsessile; exstipulate. Inflorescences terminal or axillary, paniculate. Flowers small, regular, unisexual or bisexual (plants polygamodioecious); calyx 4- or 5-lobed, glabrous; petals 4 or 5, rounded or obovate, lacking scales, ciliate on margins; disc annular or 4- or 5-lobed; fertile stamens 8, filaments glabrous, 2 mm long, sterile stamens rudimentary; ovary 2- or 3-celled, stigma lobed, pistillode reduced or wanting in staminate flowers. Fruit a drupe with leathery, green pericarp; seeds globose, large, aril fleshy.

TYPE: *Melicoccus bijugatus* Jacq.

A genus of 2 species of tropical America.

Melicoccus bijugatus Jacq., Enum. Syst. Pl. 19. 1760. FIGURE 62.

Lectotype: Jacq., Select. Stirp. Amer. Hist. *t. 72.* 1763.

Tree to 12 m tall. Leaves with petioles 1.5-7 cm long, sometimes winged; leaflets mostly 2 pairs, elliptic, ovate-elliptic, or obovate, 5-12 × 6 cm, base somewhat unequal, cuneate, apex acute or acuminate, margin entire, usually undulate. Inflorescences terminal panicles 6-20 cm long. Flowers with sepals 2 mm long; petals obovate, 3 mm long, greenish-white. Drupes globose, to 3 cm in diameter; seed 1.5-2 cm in diameter, cream-colored, hard, aril white or translucent, acid.

GENERAL DISTRIBUTION: Greater Antilles, Trinidad, Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts, Barbuda!, Antigua!, Saba, St. Eustatius, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Barbados.

COMMON NAMES: Genip, chennet, quenette, kénépier, ackee (St. Lucia).

NOTES: Although the true ackee (*Blighia*) is in cultivation on St. Lucia and Barbados, that common name is commonly applied to *Melicoccus* by the children. ''Male'' trees are recognized on many islands. Juvenile plants commonly have a widely winged leaf rachis.

PAULLINIA L.

Paullinia L., Sp. Pl. **1:** 365. 1753.

Woody lianas, usually climbing with axillary, forked, coiled, and sterile tendrils, or tendrils subtending the inflorescences. Leaves alternate, pinnate or decompound; stipulate. Inflorescences axillary, racemose, with tendrils. Flowers often irregular, unisexual or bisexual (plants polygamodioecious); sepals 5, imbricate; petals 4, with one large or two small scales; disc annular or lobed; stamens 8, filaments distinct or united below, usually pubescent; ovary 3-celled, ovule solitary in each locule, styles distinct or partly united. Fruits capsular, 3-angled or with 3 wings or apical protuberances, thick-walled; seeds globose or compressed, black, aril present and variously developed, white.

LECTOTYPE: *Paullinia pinnata* L.

A genus of perhaps 150 species of tropical America.

CULTIVATED SPECIES

Paullinia barbadensis Jacq. (Enum. Syst. Pl. 36. 1760), in spite of its name, is now considered to be endemic to Jamaica, but was reported to be cultivated on Barbados.

Paullinia fuscescens Kunth was once cultivated in the St. Vincent Botanic Garden.

KEY TO THE SPECIES

1. Leaves biternate; capsules suborbicular, 3-winged .... *P. plumieri*
1. Leaves ternate or imparipinnate.
    2. Leaves ternate; capsules pyriform, slightly lobed, apex rounded or depressed .... *P. cururu*
    2. Leaves imparipinnate, leaflets 5; capsules pyriform, apex with horns or wings.
        3. Petiole rachis winged; capsules pyriform, curved, base long-cuneate, apex with 1 or 3 horns .... *P. pinnata*
        3. Petiole not winged; capsules pyriform, short-stipitate, apex with 3 wings .... *P. vespertilio*

Paullinia cururu L., Sp. Pl. **1:** 365. 1753.

Type: Hort. Cliff. 151.

Slender climber. Leaves palmately trifoliate; petioles 4-8 cm long, winged; leaflets ovate to elliptic, 5-14 × 2.5-5 cm, base cuneate, apex acute or obtuse, margin coarsely serrate above middle, green to reddish-purple, glabrous; stipules narrowly lanceolate, to 7 mm long. Inflorescences to 20 cm long. Flowers small, white; sepals ovate, 2 mm long, tomentulous; petals oblong, 3-4 mm long, scales large, oblong; disc lobed; filaments pubescent; ovary glabrous. Capsules more or less flask-shaped, to 2 cm long, curved, apex rounded or depressed, red; seed 1, 7-9 mm long.

GENERAL DISTRIBUTION: Hispaniola, Mexico, Central America, Trinidad, Venezuela, Colombia, Brazil.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Lucia!, Barbados!.

COMMON NAMES: Bread and cheese, sucking bottle, bastard supple jack, liane à scie, liane-mangle, persil noir.

Paullinia pinnata L., Sp. Pl. **1:** 366. 1753. FIGURE 63.

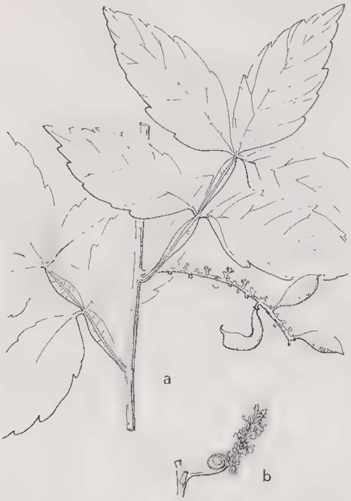
Lectotype: Plum., Pl. Amer. 76, *t. 91.* 1756 (see note below).

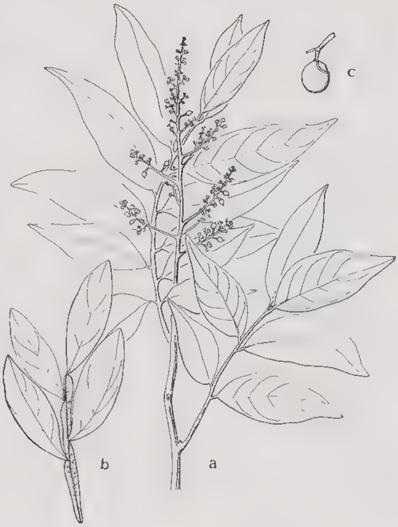
Climbing vine, tendrils axillary, forked. Leaves pinnately compound; petioles 8 cm long, winged; leaflets 5, ovate to elliptic-ovate, 6-12 × 4-5 cm, base rounded or acute, apex short-acuminate, margin dentate, coriaceous, glabrous and shiny but pubescent on veins beneath. Racemes sometimes long-peduncled, pubescent. Flowers white, 5 mm in diameter; petals obovate, 2.5-3 mm long. Capsules pyriform, 3-angled, base attenuate, apex truncate with (1 or) 3 protuberances (horns), red; seed ellipsoidal, 1.5-3 cm long, shiny, aril partially surrounding seed.

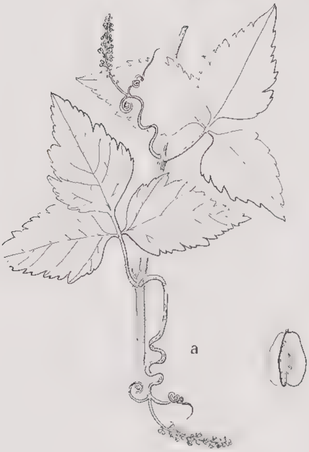
GENERAL DISTRIBUTION: Cuba, Hispaniola, Puerto Rico, Trinidad, Central America, South America, and Africa.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Martinique!, St. Lucia!, Grenada!.

NOTES: The more extensive distribution for this species in the Lesser Antilles given by Vélez can not be documented.







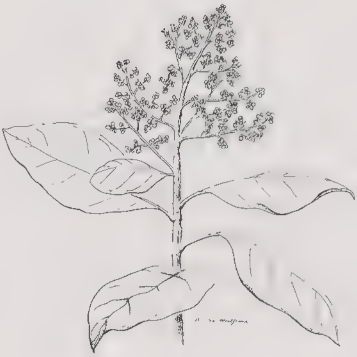


FIGURE 63 (upper left). *Paullinia pinnata*: a, fruiting branch, × 0.3; b, inflorescence with tendrils, × 0.3. FIGURE 64 (upper right). *Sapindus saponaria*: a, flowering branch, × 0.3; b, leaflet from juvenile plant, × 0.3; c, fruit of one carpel, × 0.3. FIGURE 65 (lower left). *Urvillea ulmacea*: a, flowering branch, × 0.3; b, fruit, × 0.3. FIGURE 66 (lower right). *Meliosma pardonii*, × 0.3.

F. G. Davies (Kew Bull. **32:** 429-431. 1978) has pointed out that the primary reference of Linnaeus's original description and the supporting specimen (Hort. Cliff. 152.3) apply to *Serjania curassavica* L. Since *Paullinia pinnata* L. is considered the type of the genus, Davies designated Plum., Pl. Amer. *t. 91* as the lectotype of the species and the genus *Paullinia.*

Paullinia plumieri Triana & Planchon, Ann. Sci. Nat. Bot. ser. 4, **18:** 360. 1862.

Syntypes: Plum., Pl. Amer. 101, *t. 111, fig. 1.* 1757; Guadeloupe, *L'Herminier s.n.* (P?).

Climbing vine, tendrils axillary. Leaves biternate; petioles 2-5 cm long, wingless; leaflets ovate, 3-7 × 2.5-4 cm, base long-decurrent in apical leaflet, rounded and shortly decurrent in laterals, apex acuminate, margin dentate, thin coriaceous, glabrous or nearly so. Thyrses in racemes 6-7 cm long, densely many-flowered; peduncles 1-2 cm long. Flowers with sepals ovate, 2 mm long, puberulent and ciliate; petals oblong, 2-2.3 mm long; filaments slightly pubescent; pistil pubescent, styles free. Capsules suborbicular, 1.5 cm in diameter, 3-winged, puberulent, densely so inside; seeds globose, 5 mm in diameter, aril cupular.

GENERAL DISTRIBUTION: Virgin Islands, Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Grenada!.

NOTE: The wider distribution in the Lesser Antilles given by Vélez cannot be documented.

Paullinia vespertilio Sw., Prodr. 64. 1788; Fl. Ind. Occid. **2:** 695. 1798.

Type: St. Kitts, *Masson s.n.* (holotype, BM).

Syn.: *Paullinia sphaerocarpa* sensu Griseb., Fl. Brit. W. Indian Is. 124. 1860, as to Imray specimen.

Paullinia microsepala Radlk., Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. **19:** 187. 1896. (Type: several specimens cited.)

Paullinia neuroptera Radlk., Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. **19:** 178. 1896. (Syntypes: Martinique, *Hahn 1355* (P); Dominica, *Eggers 1043* (K).)

Climbing vine. Leaves pinnate; petioles 5-8 cm long, not winged; leaflets 5, elliptic-lanceolate or lower ones ovate, 7-16 × 3-7 cm, base acute to rounded, apex acuminate, margin dentate or incised, thin coriaceous, pubescent on midrib on both surfaces, becoming glabrate or with axillary tufts of hairs. Inflorescences racemose. Flowers small; sepals 5. Capsules pyriform on stipe 0.5-1.5 cm long, apex 3-winged, wings 0.5-1.5 cm long, 4 mm wide, red; seeds ovoid.

GENERAL DISTRIBUTION: Restricted to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Montserrat, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

NOTES: The material available is still insufficient to evaluate satisfactorily the minutiae Radlkofer used to distinguish the species listed in synonymy. *P. neuroptera* is supposed to have ternate leaves but a re-examination of one of the cited specimens, *Eggers 1043*, indicates a 5-foliolate leaf.

SAPINDUS L.

Sapindus L., Sp. Pl. **1:** 367. 1753.

Trees. Leaves paripinnate, rachis commonly winged, leaflets 3 or more pairs, commonly eccentric; exstipulate. Inflorescences axillary racemes or thyrsoid panicles. Flowers regular, unisexual or bisexual (plants polygamodioecious); sepals 4 or 5, imbricate; petals 4 or 5, each with scale at base; disc annular; stamens 8 to 10, inserted on disc; ovary 3-lobed, ovules 1 in each locule, style slender, stigma 2-to 4-lobed. Fruits drupaceous, globose or 2- or 3-lobed, with fully developed carpels or 1 or 2 aborted, pericarp fleshy and saponaceous; seed globose, aril wanting.

LECTOTYPE: *Sapindus saponaria* L.

A genus of 10 species of warm and tropical Asia and America.

Sapindus saponaria L., Sp. Pl. **1:** 367. 1753. FIGURE 64.

Type: Hort. Cliff. 152; suggested by Wijnands (1983, p. 185) as an appropriate lectotype.

Syn.: *Sapindus forsythii* DC., Prodr. **1:** 607. 1824. (Type: Grenada, "*Forsyth*" (holotype, G-DC; IDC 2562. 238: III. 4, photo!).)

Sapindus inaequalis DC., Prodr. **1:** 608. 1824. (Type: Guadeloupe, *Bertero s.n.* (holotype, G-DC; IDC 2562. 238: III. 8, photo!).)

Tree to 20 m tall. Leaves 20-40 cm long; petioles to 8 cm long, rachis strongly winged or wingless; leaflets 6 to 12, oblong to lanceolate, 3-15 × 1.5-5 cm, alternate or in pairs, sessile or short-stalked, occasionally falcate, base acute or obtuse, apex acute, acuminate, or rarely obtuse, margin entire, chartaceous, glabrous. Thyrses in panicles to 25 cm long, puberulent. Flowers white, 5-6 mm in diameter; sepals orbiculate, 2 mm in diameter; petals obovate, 2 mm long; disc glabrous; fertile stamens 3-4 mm long, filaments pilose; pistillode wanting. Fruits globose, 1-2 cm in diameter, pulp (aril?) thin, translucent, drying brown or orange; seed 1.2 cm in diameter.

GENERAL DISTRIBUTION: Florida, Bahamas, Greater Antilles, Mexico and Central America, tropical South America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Barbuda!, Antigua!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, the Grenadines!, Grenada!, Barbados.

COMMON NAMES: Soapberry tree, black nicker tree, savonnette, saponaire, bois-mousseux, bois blanc.

NOTE: The plant with falcate, strongly unequal-sided leaflets, and wingless petioles and leaf rachises has been recognized as *Sapindus saponaria* L. forma *inaequalis* (DC.) Radlk.

URVILLEA Kunth

Urvillea Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 81 (ed. folio), 105 (ed. quarto). 1821.

Herbaceous or weakly woody vines, with axillary, bifid, sterile tendrils, or the inflorescence peduncle with 1 or 2 cirrhous tendrils below the flowers. Leaves ternate to biternate; stipules present. Inflorescences axillary, racemose thyrses, generally with 2 tendrils. Flowers unisexual or bisexual (plants polygamodioecious); sepals 5, imbricate, the outer 2 smaller; petals 4, each with scale above base; disk unilateral, divided into 4 glands; stamens 8, eccentric, filaments free, sparsely pubescent; ovary eccentric, slightly stalked, 3-locular, ovules 1 in each locule, style 3-fid. Fruit a thin-walled, scarcly inflated capsule with carpels separating into 3-winged, seed-bearing portions; seeds oblong to subglobose, arillate.

TYPE: *Urvillea ulmacea* Kunth.

A genus of 13 species of tropical America.

Urvillea ulmacea Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 82 (ed. folio), 106 (ed. quarto), *t. 440.* 1821. FIGURE 65.

Type: Venezuela, *Humboldt & Bonpland 629* (holotype, P; IDC 6209. 121: II. 2, photo!).

Syn.: *Urvillea seriana* Griseb., Fl. Brit. W. Indian Is. 123. 1860. (Type: not determined.)

Usually slender vines, climbing by cirrhous peduncles of the inflorescences, and tendrils. Leaves ternate; petioles 1-6 cm long; leaflets rhombic-ovate, 3-7 × 1.5-3 cm, base rounded to truncate and slightly decurrent and unequal on petiolules, apex acuminate or obtuse, margin lobed and incised and crenate, glabrate above, variously pubescent beneath; stipules ovate, attenuate. Inflorescences with peduncles to 12 cm long. Flowers 4 mm in diameter, white; pedicels to 2 mm long. Samaralike mature carpels elliptic, 2-3 × 2 cm, base acute, apex rounded or emarginate; seeds oblong, 2-3 mm long, black, hilum reniform, white.

GENERAL DISTRIBUTION: Southern Texas, Mexico and Central America, tropical South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Martinique!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAMES: Liane-persil, liana-savon.

SABIACEAE

by George Staples

SABIACEAE Blume, Mus. Bot. **1:** 368. 1851.

Trees, shrubs or rarely vines. Leaves alternate, simple or pinnate; exstipulate. Inflorescences terminal or axillary cymes or panicles. Flowers regular, usually bisexual; sepals (3 to)5, imbricate; petals 5, opposite sepals, unequal, imbricate; stamens 5, opposite petals, outer 3 reduced to staminodes, inner 2 functional, anthers bilocular; disc present or wanting; ovary superior, bilocular, ovules 2 per locule, placentation axile, styles 2, often connate, stigmas or stigmatic surfaces 2. Fruit drupaceous, leathery and dry at maturity, or rarely a berry; seeds with large embryo and little endosperm.

TYPE: *Sabia* Colebr.

A small family confined to the tropics and subtropics of Asia and the Americas. In the broad sense only 4 genera and about 80 species are included; some authorities restrict the Sabiaceae to the genus *Sabia* and remove *Meliosma*, *Phoxanthus* and *Ophiocaryon* to the Meliosmaceae, based on the reduced number of fertile stamens present in the flowers of these genera. In a recent revision of the Asiatic species of *Meliosma*, Beusekom (Blumea **19**: 355-529. 1971) has retained the former arrangement, and recognizes only about 10 species of *Meliosma* in the Americas.

MELIOSMA Blume

Meliosma Blume, Catalogus 10. 1823.

Syn.: *Atelandra* Bello, Anales Soc. Esp. Hist. Nat. **10:** 289. 1881. (Type: *Atelandra laurina* Bello.)

Evergreen trees or shrubs, often pubescent on younger parts. Leaves alternate or subopposite, petiolate, often pulvinate; blades simple (rarely imparipinnate), entire (or dentate in juvenile plants). Inflorescences terminal or arising from axils of uppermost leaves, often paniculate; axes often lenticellate, bracteose. Flowers small, numerous, perfect; bracteole 1; sepals 5, ciliate, persistent in fruit; petals 5, unequal, outer 3 orbiculate or ovate, inner 2 oblong or linear; staminodes 3, adnate below to outer 3 petals, apically loosely connivent around style; stamens 2, filaments flattened and fused below to inner 2 petals, anthers borne in cupule at filament apex, introrse; disc toothed or lobed (or wanting); ovary ovoid to globose, style simple or slightly bifid apically, stigmas minute. Fruit a drupe, inequilateral at base, mesocarp pulpy, becoming leathery on drying, endocarp bony, smooth to variously sculptured, unilocular, tardily splitting into 2 valves; seed inequilateral, concave ventrally, lacking endosperm.

LECTOTYPE: *Meliosma lanceolata* Blume; designated by C. F. van Beusekom (Blumea **19:** 429. 1971).

The genus *Meliosma* is distributed in tropical and temperate areas of the Americas and eastern Asia. According to the recent monograph by van Beusekom (1971), there are 15 species (with numerous infraspecific taxa) in Asia and about 10 species in the Americas; the revision deals only with the Asiatic taxa. Two species are found in the Lesser Antilles. Van Beusekom derives taxonomic characters from the nature of the endocarp, and provides some comparative data on the neotropical taxa. While endocarp characters have not been studied comprehensively for the American species of *Meliosma*, the differences apparent in the Lesser Antillean taxa suggest these characters will be useful for the other American taxa as well.

KEY TO THE SPECIES

Leaves ± oblong-elliptic with flat margins and acuminate apex; inner petals notched apically and ciliate; disc wanting; endocarp rugose, not keeled.... *M. herbertii*

Leaves obovate with revolute margins and rounded apex; inner petals entire, glabrous; disc collarlike, toothed; endocarp medially keeled and laterally ridged........ .... *M. pardonii*

Meliosma herbertii Rolfe, Kew Bull. **1893:** 244. 1893.

Type: St. Vincent, *H. H. & G. W. Smith 830 & 1837* (syntypes, K).

Syn.: *Atelandra laurina* Bello, Anales Soc. Esp. Hist. Nat. **10:** 289, *t. 5.* 1881, non *Meliosma laurina* Blume (1849). (Type: Not designated.)

Meliosma herbertii Rolfe var. *martinicensis* Krug & Urban *in* Urban, Symb. Antill. **1:** 516. 1900. (Syntypes: Martinique, *Duss 55* (B, presumably destroyed; isosyntype, GH!), *Duss 585* (B, presumably destroyed), *Hahn 539* (B, presumably destroyed).)

Evergreen tree to 25 m tall, glabrous or sparsely pubescent; bark grayish-brown, lenticellate; axillary buds densely reddish pubescent. Leaves simple, alternate or subopposite; petioles pulvinate, 1.3-2.9 cm long; blades oblong-elliptic or narrowly obovate, (10-)12-19.5(-25) × 4-5.5(-8.5) cm, base attenuate, apex rather abruptly acuminate, (rarely obtuse or rounded), margin entire and flat, lateral nerves (6)7 to 9(11) pairs, chartaceous. Panicles 18-22 cm long. Flowers subsessile, fragrant; bracteole ovate-obtuse, < 1 mm long, ciliate; sepals unequal, ovate to suborbiculate, 1-2 mm long; petals white, outer 3 entire, 2 × 2 mm, glabrous, inner 2 ca. 1 mm long, apically bifid, the lobes acute, sparsely ciliate; staminodes < 1 mm long, stamens ca. 1 mm long, anthers transversely dehiscent; disc wanting; pistil < 1 mm long, style briefly bifid apically. Drupes obovoid to subglobose, 15-22 × 12-17 mm, violet-black at maturity; endocarp obovoid-pyriform, 15-17 × 11-12 mm, faintly grooved medially on dorsal surface, flat or slightly keeled on medial ventral surface, coarsely rugose laterally, glabrous.

GENERAL DISTRIBUTION: Puerto Rico, Hispaniola, Lesser Antilles, northern Venezuela.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Black guano, bois-de-sept-ans, black sweetwood, laurier gleau, gross grain, bois violet, grains violettes, graines vertes.

NOTES: A thorough revision of the American taxa of *Meliosma* is necessary to clarify the species limits. Van Beusekom (p. 403, 445) refers to this species in ''Central America'', yet the vouchers he cites (*Sintenis 4006 & 6177*) were collected on Puerto Rico; this is doubtless an error on his part.

Meliosma pardonii Krug & Urban, Ber. Deutsch. Bot. Ges. **13:** 215, in observ. 1895; Symb. Antill. **1:** 512. 1900. FIGURE 66.

Type: Guadeloupe, Bains Jaunes, *Duss 3435* (isotype, GH!).

Evergreen tree 18-25 m tall, glabrous or reddish-pubescent; bark brownish, sparsely lenticellate; axillary buds reddish-pilose. Leaves simple, alternate or subopposite; petioles pulvinate, 6-10 mm long; blades obovate to obovate-elliptic, 7-13 × 3-6.5 cm, base attenuate, apex obtuse or rounded (rarely obscurely acuminate), margin entire, flat or markedly revolute, secondary nerves (5)6 or 7(8) pairs, thickly chartaceous. Panicles 5-13 cm long; axes ± densely rusty-puberulent. Flowers subsessile, fragrant; bracteole suborbiculate, ca. 0.5 mm long; sepals unequal, triangular-suborbiculate, 1-1.2 mm long; petals white, all glabrous, outer 3 broader than long, 1-1.5 × 2-2.5 mm, inner 2 ca. 2 × < 1 mm, obtuse apically; staminodes ca. 1.5 mm long; stamens 2.3-2.5 mm long, anthers longitudinally dehiscent; disc collarlike, flat and membranous, irregularly toothed, the teeth acute, persisting in fruit; pistil ca. 1 mm long, style simple. Drupes obovoid-pyriform, 12-17 × 9-13 mm, coarsely wrinkled and medially keeled, black spotted with gray at maturity; endocarp obovoid, 10-12 × 8-9 mm, base oblique, with pronounced medial keel and strong lateral ridges, glabrous.

GENERAL DISTRIBUTION: Endemic to Guadeloupe.

COMMON NAME: Graines vertes.

NOTE: The aspect of this species overlaps considerably with the preceding, yet these seem to be two good species. The characters distinguishing them, while of little practical use in the field, are nonetheless quite distinct and invariant.

BALSAMINACEAE

by George Staples

BALSAMINACEAE A. Rich. *in* Bory, Dict. Class. Hist. Nat. **2:** 173. 1822 ('Balsamineae').

Annual or perennial, often succulent, herbs. Leaves alternate, opposite, or whorled, petiolate, simple; exstipulate. Flowers bisexual, irregular, resupinate, often dimorphic, usually protandrous, axillary, solitary or in few-flowered fascicles; sepals 3 (rarely 5), unequal, the first petaloid and spurred, the others smaller, imbricate; petals 5, alternate with sepals, free or variously fused; stamens 5, sheathing the pistil, filaments distinct, anthers bilocular, united around stigma; ovary superior, 5-locular, placentation axile, ovules (2 or) 3 to many per locule, stigmas 1 to 5, (sub)sessile. Fruit an explosively dehiscent, 5-valved capsule (rarely a berry); seeds with straight embryo and no endosperm.

TYPE: *Balsamina* Miller, nom. illegit. = *Impatiens* L.

A family including either 2 or 4 genera and some 500 to 1000 species, nearly all in the genus *Impatiens.* While widely distributed in temperate and tropical regions of North and Middle America, Eurasia, and Africa, the family is absent from South America and Australia. Several species of *Impatiens* and their hybrids are widely grown as ornamentals.

IMPATIENS L.

Impatiens L., Sp. Pl. **2:** 937. 1753.

Syn.: *Balsamina* Miller, Gard. Dict. abr. ed. 4. 1754.

Characters of the family.

LECTOTYPE: *Impatiens noli-tangere* L.; designated by P. A. Rydberg, N. Amer. Fl. **25**(2): 93. 1910.

Estimates of the number of species of *Impatiens* range from 420 to over 1000, with the greatest number of species occurring in mesic tropical and temperate Asia and Africa. Two species are cultivated and locally established in the Lesser Antilles. A third species is possibly cultivated, or will soon be introduced there. For additional information see C. Grey-Wilson, 1980. *Impatiens* of Africa. 235 pp. Balkema, Rotterdam.

CULTIVATED SPECIES

In recent years the 'New Guinea Impatiens' have appeared in the horticultural trade. These are cultivars and hybrids of *Impatiens hawkeri* W. Bull, a species native to New Guinea and the Sunda Islands. This taxon is distinguished from the two native species by its opposite or verticillate leaves and epedunculate, long-spurred flowers borne on a very long pedicel. In many cultivars the leaves are also variegated with yellow, red, or white. While no specimens of this species have been seen for the Lesser Antilles, it is included because it will very likely be, if it has not already been, introduced there.

KEY TO THE SPECIES

1. Leaves opposite or verticillate . . . . *I. hawkeri*
1. Leaves alternate.
    2. Blades lanceolate-elliptic, attenuate at both ends; flowers epedunculate; plants ± pubescent . . . . *I. balsamina*
    2. Blades ovate, base abruptly tapering; flowers pedunculate and pedicellate; plants glabrous . . . . *I. walleriana*

Impatiens balsamina L., Sp. Pl. **2:** 938. 1753. FIGURE 67.

Type: Not designated.

Erect annual herb 30-50 cm tall; stems terete, to 2 cm in diameter, succulent and smooth in life, flattened and striate when dry, puberulent with ± curly hairs, glabrate. Leaves alternate; petioles angulate-striate, (5-)8-16(-26) mm long, often with several dark, tack-shaped glands near junction with blade; blades lanceolate to narrowly elliptic, 6.5-14.3 × 2-3.3 cm, base long-attenuate and ± decurrent on petiole, apex acuminate, margin serrate, herbaceous in life, membranous to thinly chartaceous when dry, sparsely puberulent to glabrous. Flowers axillary, solitary or in fascicles of 2 or 3, epedunculate; bracts 2, scalelike, in axil of pedicel; pedicels terete, slender, (8-)10-12(-15) mm long, increasing to 14-20 mm in fruit, puberulent; sepals 3, lowermost strongly naviculate, 1.3-1.9 cm long, with spur 1.3-2 cm long, sparsely puberulent to glabrous outside, lateral sepals ovate, 2-3(-5) mm long, glabrous; corolla showy, flat, 3.5-4 cm long and wide, variously colored, membranous, glabrous, dorsal petal notched apically and with abaxial keel, lateral petals joined in pairs at their bases, free distally; ovary densely pubescent. Capsules broadly fusiform, 10-12(-17) × 5-6(-8) mm, densely pubescent, with prominent annular ring (perianth scar) at apex of pedicel; seeds subglobose, 2-3 mm in diameter, brownish with yellow dots, finely verruculose.

GENERAL DISTRIBUTION: Native to India, China, and parts of southeast Asia, now generally introduced throughout the world as an ornamental.

DISTRIBUTION IN LESSER ANTILLES: St. Eustatius, Montserrat!, Guadeloupe!, Dominica!, Martinique, Barbados!.

COMMON NAMES: Impatience, gekweekt.

NOTE: This species is cultivated and locally established in the Lesser Antilles.

Impatiens walleriana Hook. f. *in* Oliver, Fl. Trop. Afr. **1:** 302. 1868.

Type: Mozambique, Moramballa, *Kirk & Waller s.n.* (holotype, K).
Syn.: *Impatiens sultani* Hook. f., Bot. Mag. **108:** *t. 6643.* 1882. (Type: Zanzibar, *Kirk s.n.* (holotype, K).)

Erect perennial herb to 70 cm tall, glabrous; stems terete, 5-10 mm in diameter, succulent and smooth in life, striate and flat when dry. Leaves alternate; petioles flat, striate laterally, 1.1-3 cm long; blades ovate, 6-14 × 2.7-5 cm, base abruptly tapering and attenuate on petiole, apex acuminate, margin serrate-crenate with each tooth ending in glanduliferous tip, membranous when dry, sparsely punctiform below, glabrous, often with stipitate nectaries along base. Inflorescences aggregated near stem tips in axils of subterminal leaves, usually 2(3 to 5)-flowered; peduncle filiform, 2-4.6 cm long, increasing to 4-5.2 cm in fruit; bracts 2, linear-filiform, 1-3 mm long. Flowers flat, 3.5-5 cm long and wide, variably colored; pedicels filiform, 1.6-3 cm long; lowermost sepal naviculate, 1-1.6 cm long, abruptly narrowed into spur 3-4 cm long, lateral sepals 2, ovate-lanceolate, 2-4 × 1 mm; dorsal petal acute

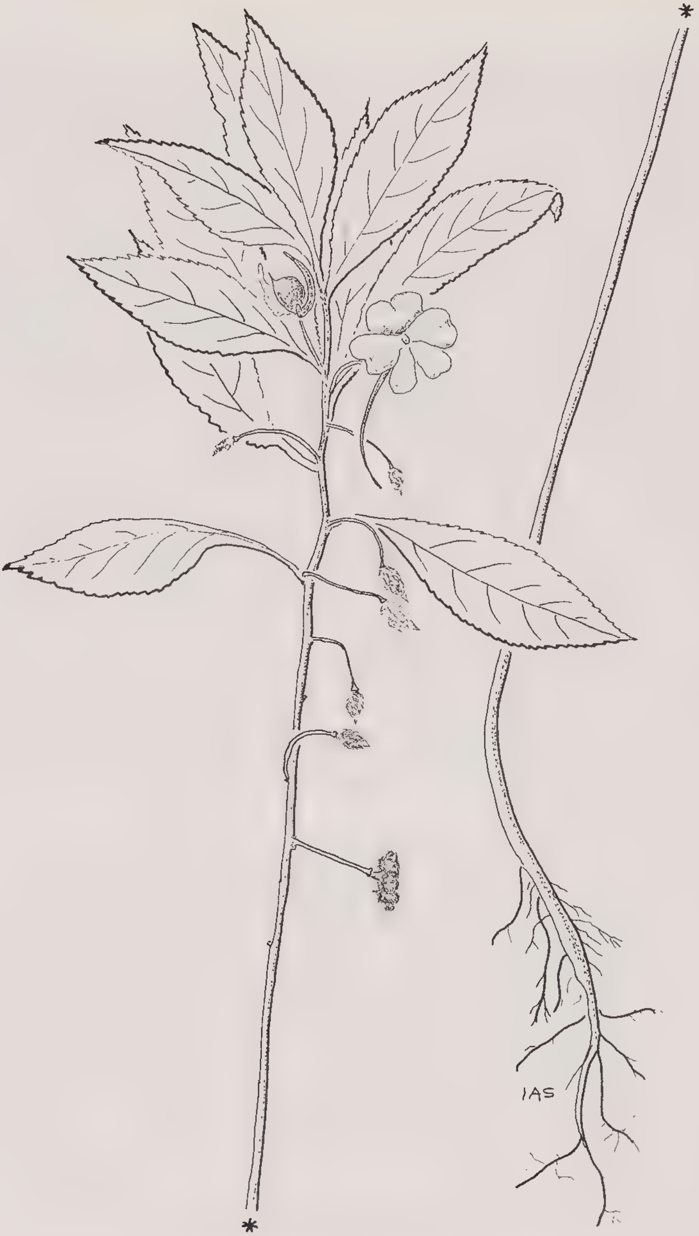


FIGURE 67. *Impatiens balsamina*, × 0.65.

apically with narrow abaxial keel; lateral petals shortly fused at their bases, free above; ovary glabrous. Capsules narrowly fusiform, 15-20 × 4-6 mm, glabrous; seeds compressed pyriform, ca. 1.5 × 1 mm, brownish with white dots, minutely verruculose, glabrous.

General distribution: Originally from tropical eastern Africa and Zanzibar, now widespread worldwide through cultivation.

Distribution in Lesser Antilles: Guadeloupe, Martinique.

Common names: Impatience, balsamine.

Notes: Questel (Géographie Générale de la Guadeloupe et Dépendances, I. La Flore, 276. 1951) cited this species (as *I. sultani*) as a new cultivated plant for Guadeloupe. Fournet (Fl. Ill. Phan. Guad. Mart. 1117. 1978) reports the plants are cultivated and tending to become naturalized. We have seen no specimens but these reports are likely to be accurate and the species is therefore treated as established.

RHAMNACEAE

by Allan J. Bornstein

RHAMNACEAE A. L. Juss., Gen. Pl. 376. 1789 ('Rhamni').

Shrubs, small trees, or woody vines, unarmed or with stipular spines or axillary thorns. Leaves alternate or less often opposite, petiolate; blades entire to serrate; stipules small, caducous or persistent. Inflorescences terminal and/or axillary, cymose or thyrsiform. Flowers small, regular, usually perfect, 4- or 5-merous, with distinct floral tube, generally green to yellow-green; calyx short-tubular with triangular, valvate lobes; petals smaller than sepals and alternate with them, sometimes absent, often strongly concave or infolded, base sessile or clawed; stamens opposite petals and often hooded by them, filaments usually subulate, anthers dorsifixed and nonversatile, longitudinally dehiscent; disk intrastaminal, perigynous to less often epigynous, commonly fleshy; ovary superior but usually sunken in and obscured by disk, or semi-inferior or inferior, 2- to 4-locular, ovules 1 (rarely 2) per cell, basal and erect, style often 2- or 3-parted, stigmas 2 or 3. Fruit a drupe or schizocarpic capsule.

Type: *Rhamnus* L.

A family of 50 to 55 genera and an estimated species number of 600 to 900; predominantly tropical and warm temperate, occurring in both hemispheres. For additional information see K. Suessenguth in A. Engler & K. Prantl, Nat. Pflanzenfam. ed. 2, **20d:** 7-173. 1953; and G. K. Brizicky, J. Arnold Arbor. **45:** 439-463. 1964.

KEY TO THE GENERA

1. Leaves alternate.
   2. Plant a woody vine or scandent shrub; ovary inferior; fruit winged .... *Gouania*
   2. Plant an erect shrub or small tree; ovary superior to semi-inferior; fruit wingless.
      3. Plant armed with stipular spines or axillary thorns; fruit an indehiscent drupe .... *Ziziphus*
      3. Plant unarmed; fruit a schizocarpic capsule .... *Colubrina*
1. Leaves opposite or subopposite.
   4. Petals present; sepals without crest within; leaves oblong to obovate, thick-coriaceous; endosperm present, ruminate .... *Reynosia*
   4. Petals absent; sepals crested within; leaves ovate to broadly elliptic, thin-coriaceous; endosperm absent .... *Krugiodendron*

COLUBRINA Rich. ex Brongn.

Colubrina Rich. ex Brongn., Mém. Fam. Rham. 61. 1826; Ann. Sci. Nat. (Paris) **10:** 368. 1827, nom. cons.

Trees or shrubs, rarely scandent, usually with pubescent stems, plants unarmed (in Lesser Antillean spp.). Leaves alternate; blades entire or serrate, with or without glands (marginal or abaxial), penninerved or triplinerved from base, membranous to subcoriaceous. Inflorescences thyrsiform, short-pedunculate, as long as or shorter than petioles, several-flowered. Flowers perfect; sepals spreading, each lobe with conspicuous median keel within, deciduous; petals slightly shorter than sepals, strongly concave, spatulate, short-clawed, yellow-green or green-yellow, deciduous; stamens hooded by petals, filaments subulate, anthers ovate; disk large, fleshy, ± filling floral cup, 5- or obscurely 10-lobed, accrescent along with cup and adnate to lower third to half of ovary; ovary semi-inferior, 3-locular, styles slender, 3-lobed or trifid, stigmas 3, small. Fruit a schizocarpic capsule; mesocarp thin, flaky, breaking irregularly, endocarp crustaceous, at maturity the 3 endocarpids separating from each other and subsequently dehiscent adaxially and partly abaxially; seeds shiny black or dull brown.

LECTOTYPE: *Colubrina ferruginosa* Brongn. (based on *Rhamnus colubrina* Jacq.), type cons. = *Colubrina arborescens* (Miller) Sarg.

A genus of 31 species divided into two subgenera primarily on the basis of leaf margin features (entire vs. serrate, and the occurrence of glands). Nearly pantropical in distribution, with the majority of species occurring in the New World, the remainder in southeast Asia, Malesia, Australia, Polynesia, and East Africa-Madagascar. For additional information see M. Johnston, Brittonia **23:** 2-53. 1971.

KEY TO THE SPECIES

1. Leaves serrate, triplinerved from the base, glabrous to very sparsely pilose along the veins; branches glabrous or nearly so; seeds dull brown; plant a scandent shrub . . . . *C. asiatica*
1. Leaves entire, penninerved, pubescent to tomentose at least beneath when young; branches pubescent when young; seeds shiny black; plant an erect shrub or small tree.
   2. Young leaves, branches, and inflorescences densely rusty-tomentose; intramarginal glands present on abaxial leaf surface, especially at the ends of intermediate secondary veins . . . . *C. arborescens*
   2. Young leaves (abaxially), branches, and inflorescences finely tawny to buff pubescent or tomentose; intramarginal glands absent, but most leaves with a conspicuous pair of marginal glands near base of the blade . . . . *C. elliptica*

Colubrina arborescens (Miller) Sarg., Trees & Shrubs **2:** 167. 1911.

Basionym: *Ceanothus arborescens* Miller, Gard. Dict. ed. 8. 1768.
Type: Providence, Bahamas, *P. Miller s.n.* (holotype, BM). A specimen collected from a plant in the Chelsea Garden, grown from seed sent by Catesby.
Syn.: *Rhamnus colubrina* Jacq., Enum. Syst. Pl. 16. 1760 ('colubrinus'). (Type: J. Commelijn, Horti Med. Amstelod. **1:** *t. 90.* 1697.)
Ceanothus colubrinus (Jacq.) Lam., Tabl. Encycl. **2:** 90. 1797.
Colubrina ferruginosa Brongn., Mem. Fam. Rham. 62. 1826; Ann. Sci. Nat. (Paris) **10:** 369. 1827, nom. illegit. for *Rhamnus colubrina* Jacq.
Marcorella colubrina (Jacq.) Raf., Sylva Tellur. 29. 1838, nom. illegit.
Colubrina colubrina (Jacq.) Millsp., Publ. Field Columbian Mus., Bot. Ser. **2:** 69. 1900.

Shrub or small tree, 1-8 m tall, rarely more; twigs densely ferrugineous-tomentose. Leaves with petioles 0.6-2 cm long, tomentose; blades ovate-oblong to oblong-elliptic, 4.5-11.5(-14) × 2-7.4 cm, base rounded to obtuse, less often acute or very shallowly subcordate, apex acute to short-acuminate, margin entire, penninerved with abaxial glands, especially at ends of intermediate secondary veins, subcoriaceous, densely rusty-tomentose on both surfaces when young, soon glabrate above, usually permanently pubescent to tomentose beneath. Inflorescences with peduncle and pedicels densely tomentose. Flowers with sepal lobes to 2 mm long, greenish within, abaxially densely tomentose; petals yellowish; stamens to 2.5 mm long; disk obscurely 10-lobed. Fruits broadly obovoid to subglobose, 5-7 mm long, 6-8 mm in diameter, brownish-black, with floral cup 1/3 to 1/2 as long; seeds occasionally long-persistent on thick funiculi, obovoid to suborbicular, somewhat compressed, 3-4 × 3-4 mm, shiny black.

GENERAL DISTRIBUTION: Southern Florida, Bahamas, the West Indies, southern Mexico, and Central America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Barts!, Barbuda!, Antigua!, Saba, Montserrat!, Guadeloupe!, Barbados!.

COMMON NAMES: Mambe, mabie, soap bush, mauble bark, soapberry, blackbead tree.

Colubrina asiatica (L.) Brongn., Mem. Fam. Rham. 62. 1826; Ann. Sci. Nat. (Paris) **10:** 369. 1827.

Basionym: *Ceanothus asiaticus* L., Sp. Pl. **1:** 196. 1753.
Lectotype: Herb. Hermann 2.11 (BM); designated by M. Johnston, Brittonia **23:** 47. 1971.

Clambering or sprawling woody vines or scandent shrubs; twigs glabrous to very sparsely pilose. Leaves with petioles 0.75-2.5 cm long, sparsely pilose; blades ovate, 4-9.5 × 2-5.3 cm, base rounded to obtuse or shallowly subcordate, apex acuminate, margin serrate, triplinerved from base, membranous, very sparsely pilose to glabrous. Inflorescences with peduncle and pedicels sparsely pilose. Flowers with sepal lobes 1-1.5 mm long, greenish, glabrous; petals greenish-yellow; stamens ca. 1 mm long; disk ± 5-lobed; style deeply 3-parted. Fruits ± globose, 6-8 mm long, light brown to brown, with floral cup 1/4 as long; seeds obovoid, 4-4.5 mm long, ventrally dihedral, dorsally convex, dull brown.

GENERAL DISTRIBUTION: Native throughout the Old World range of the genus; introduced in the Caribbean area especially in the Florida Keys, Bahamas, Cuba, and Jamaica.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Martinique.

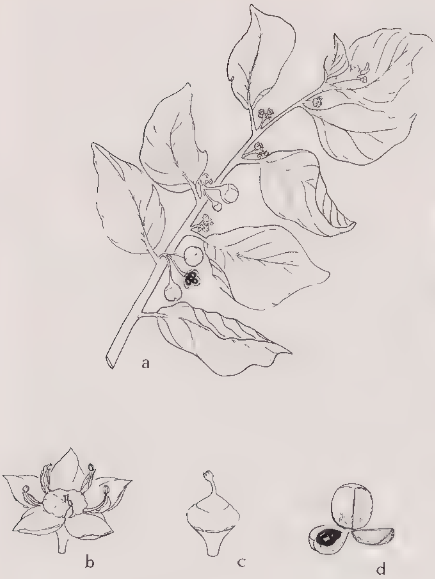
NOTES: Apparently first introduced in the Caribbean area in Jamaica. Probably spreading both by subsequent introduction on the neighboring islands and by natural means (the seeds are light and buoyant in sea water, remaining viable for several months).

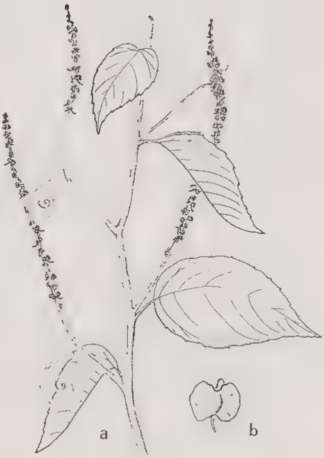
No specimens from the Lesser Antilles have been seen. The description is based on other West Indian material.

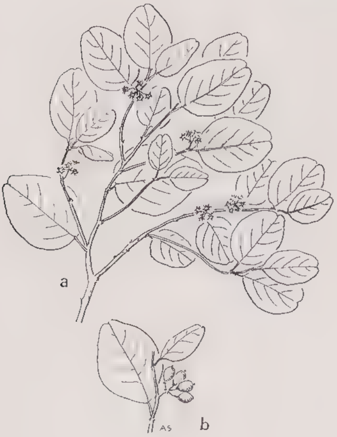
Colubrina elliptica (Sw.) Briz. & W. Stern, Trop. Woods **109:** 95. 1958. FIGURE 68.

Basionym: *Rhamnus elliptica* Sw., Prodr. 50. 1788 (as 'ellipticus'); Fl. Ind. Occid. **1:** 497. 1797.
Type: Jamaica, *Swartz s.n.* (holotype, S; isotype, M).
Syn.: *Ceanothus reclinatus* L'Hér., Sert. Angl. 6. 1789. (Type: Jamaica, *Wm. Wright s.n.* (holotype, P; isotype, K).)
Colubrina reclinata (L'Hér.) Brongn., Mem. Fam. Rham. 62. 1826; Ann. Sci. Nat. (Paris) **10:** 369. 1827.

Shrub or small tree, 2-6 m tall, rarely to 10 m or more; twigs pubescent to densely pubescent with tawny to buff-colored hairs. Leaves with petioles 0.5-1.7 cm long, pubescent; blades ovate-elliptic to less commonly ovate-lanceolate or obovate, 2.6-8.2(-13.2) × 1.7-4.6(-6.6) cm, base rounded or broadly cuneate, apex acute to more commonly acuminate, margin entire with a pair of glands near petiole-blade junction (on at least some leaves of the plant), penninerved, membranous, essentially glabrous above, densely pubescent to tomentose beneath when young, becoming sparsely pubescent to pubescent. Inflorescences with peduncle and pedicels densely pubescent. Flowers with sepal lobes 1-1.5 mm long, abaxially pubescent to densely







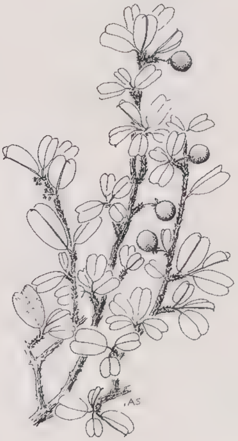


FIGURE 68 (upper left). *Colubrina elliptica*: a, fruiting branch, × 0.3; b, flower, × 0.5; c, young fruit, × 0.5; d, open fruit, × 0.7. FIGURE 69 (upper right). *Gouania lupuloides*: a, flowering branch, × 0.3; b, fruit, × 0.3. FIGURE 70 (lower left). *Krugiodendron ferreum*: a, flowering branch, 0.3; b, fruiting branch, × 0.3. FIGURE 71 (lower right). *Reynosia uncinata*, × 0.3.

pubescent; petals yellowish; stamens ca. 1 mm long; disk obscurely 10-lobed. Fruits ± globose, 6-7 mm long, reddish brown, with floral cup 1/4-1/3 as long; seeds obovoid, somewhat compressed, 3-4 × 2.5-3 mm, shiny black.

GENERAL DISTRIBUTION: Florida Keys, central Mexico south to Central America, the West Indies, and Venezuela.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Guadeloupe, Martinique, St. Vincent!, St. Lucia!.

COMMON NAMES: Mabi, bois-mabi, mambi, mouby.

NOTE: The bark is used to produce a fermented drink called mabi.

GOUANIA Jacq.

Gouania Jacq., Select. Stirp. Amer. Hist. 263. 1763.

Woody vines or scandent shrubs, climbing by tendrils (modified axillary branches) commonly located near base of inflorescences, plants unarmed. Leaves alternate, serrate, each tooth with a small patelliform gland, membranous to papyraceous. Inflorescences axillary and terminal, racemiform or paniculate thyrses composed of glomerules, many-flowered, each cluster subtended by a lanceolate-deltate bract. Flowers perfect or unisexual by abortion (plants polygamous), 5-merous, short-pedicellate; sepals persistent; petals strongly concave, short-clawed, white to greenish-white, deciduous; stamens hooded by petals, filaments subulate, anthers ovoid; disk large, epigynous, 5-lobed, these opposite sepals, commonly extended into staminodelike projections, entire or apically bilobed; ovary inferior, 3-locular, styles trifid, stigmas 3, small. Fruit a schizocarp, winged (rarely wingless), at maturity splitting through each wing into 3 indehiscent, 2-winged mericarps; seeds ovoid-ellipsoid, ventrally concave, dorsally convex, shiny brown.

LECTOTYPE: *Gouania tomentosa* Jacq. = *Gouania polygama* (Jacq.) Urban. (See N. L. Britton & C. F. Millspaugh, Bahama Fl. 258. 1920.) The ING incorrectly lists *Gouania glabra* Jacq. as the lectotype, per K. Suessenguth *in* A. Engler & K. Prantl, Nat. Pflanzenfam. ed. 2, **20d:** 166. 1953.

A pantropical genus of 30 to 50 species, with the majority in the New World from southern Florida to South America.

NOTE: The genus is sorely in need of a modern revision as the current delimitation of species is questionable at best. The following taxa are an excellent case in point. Most recent treatments of *Gouania* in the New World have listed *G. polygama* as a synonym of *G. lupuloides*, as the pubescence of the leaves, originally used to separate the species, is a continuously varying feature. While it is agreed that this is a relatively poor discriminating character, there are other features that can be used to distinguish between these species. I have used these characters, arranged in order of importance and consistency, in the following key. One will immediately note that fruiting material is preferable for separating these taxa.

Fruit wing attached to side of fruit body only; seeds 2-2.75 mm long; floral disk sparsely pubescent near emergence of the styles, rarely glabrous throughout; young twigs velutinous to tomentose . . . . *G. polygama*
Fruit wing attached to side and base, and/or apex of fruit body; seeds 3-4 mm long; floral disk glabrous throughout; young twigs sparsely pubescent. *G. lupuloides*

Gouania lupuloides (L.) Urban, Symb. Antill. **4:** 378. 1910. FIGURE 69.

Basionym: *Banisteria lupuloides* L., Sp. Pl. **1:** 427. 1753.
Type: Not designated.
Syn.: *Rhamnus domingensis* Jacq., Enum. Syst. Pl. 17. 1760. (Type: "Domingo," *Jacquin s.n.*, material doubtfully preserved.)
Gouania domingensis (Jacq.) L., Sp. Pl. ed. 2, **2:** 1663. 1763.
Gouania glabra Jacq., Select. Stirp. Amer. Hist. 264. 1763, nom. illegit. for *Rhamnus domingensis* Jacq.
Lupulus lupuloides Kuntze var. *domingensis* (Jacq.) Kuntze, Revis. Gen. Pl. **1:** 119. 1891.

High climbing vine or less often a scandent shrub; young branches sparsely pubescent to glabrous, less often pubescent. Leaves with petioles 0.5-2 cm long, pubescent; blades ovate to occasionally elliptic, 4.6-10.8(-13.2) × 2.1-7.1 cm, base rounded to subcordate, apex acute to short-acuminate, glabrous to sparsely pubescent on both surfaces. Inflorescences 4-20 cm long; rachis sparsely pubescent to tomentose. Flowers mostly perfect, fragrant; pedicels 1-3 mm long, pubescent; sepals 1-1.75 mm long, abaxially pubescent to densely pubescent; petals ca. 1 mm long; disk glabrous throughout. Fruits 4-15 mm broad including the wings, when present; body generally 4-5 mm high × 3 mm broad, glabrous to very sparsely pubescent, brown to black; wings reniform, 7-12 mm high × 2-6 mm broad, surrounding body along side and base and/or apex, pale yellow-brown, glabrous; seeds 3-4 mm long, dark brown.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, the West Indies, and northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts!, Antigua!, Saba, St. Eustatius, Montserrat, Guadeloupe!, Marie Galante!, Les Saintes!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada, Barbados!.

COMMON NAMES: Liane-savon, lyenn-savon, chew-stick, toothbrush tree.

NOTES: The stems of this species are chewed to heal and harden the gums as well as clean the teeth.

Gouania polygama (Jacq.) Urban, Symb. Antill. **4:** 378. 1910.

Basionym: *Rhamnus polygamus* Jacq., Enum. Syst. Pl. 17. 1760.
Type: "Domingo," *Jacquin s.n.*, material doubtfully preserved.
Syn.: *Gouania tomentosa* Jacq., Select. Stirp. Amer. Hist. 263. 1763, nom. illegit. for *Rhamnus polygamus* Jacq.
Lupulus lupuloides Kuntze var. *tomentosus* (Jacq.) Kuntze, Revis. Gen. Pl. **1:** 119. 1891.

High climbing vine or less often a scandent shrub; young branches densely velutinous to tomentose, rarely simply pubescent. Leaves with petioles 0.6-1.6 cm long, pilose to tomentose; blades ovate to oblong-ovate, 5.5-9.4(-12.1) × 3.8-5(-7.2) cm, base rounded to subcordate, apex acute to short-acuminate, pilose to glabrescent above, pilose to pubescent beneath, rarely glabrescent. Inflorescences to 19.7 cm long; rachis tomentose. Flowers generally perfect, fragrant; pedicels 1-2 mm long, pubescent to tomentose; sepals 0.75-1.25 mm long, abaxially pubescent to densely pubescent; petals ca. 1 mm long; disk sparsely pubescent near emergence of styles, rarely glabrous throughout. Fruits 6-13 mm broad including the wings; body ca. 3 mm high × 2 mm broad, glabrous to sparsely pubescent, brown to black; wings reniform to broadly reniform-dolabriform, 5-6 mm high × 4-5 mm broad, surrounding side of body only, pale yellow-brown to greenish-yellow, glabrous; seeds 2-2.75(-3) mm long, yellow-brown to brown.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, the West Indies, and northern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, St. Vincent!, Grenada!.

COMMON NAME: Liane-savon.

NOTES: Although the descriptions provided for the two species of *Gouania* are based on Lesser Antillean specimens, I have examined material thoughout the West Indies as well as Mexico and Central America. The primary distinguishing characters, as expressed in the key, hold over the range of the material examined. Within the Lesser Antilles the type of pubescence on the young twigs can be used fairly reliably to distinguish between the two taxa, but this distinction breaks down in other areas. When fruiting material is not available, the presence or absence of hairs on the disk near the emergence of the styles can be used, with rare exception, for identification purposes.

KRUGIODENDRON Urban

Krugiodendron Urban, Symb. Antill. **3:** 313. 1902.

Evergreen trees or shrubs, plants unarmed. Leaves opposite or subopposite; blades entire, thin-coriaceous. Inflorescences axillary, umbelliform cymes, few-flowered. Flowers perfect, 5-merous, pedicellate, greenish-yellow; sepals much longer than flattened floral tube, conspicuously crested within, deciduous; petals wanting; stamens shorter than calyx lobes, filaments subulate, anthers ovoid to suborbicular; disk annular, crenate, fleshy, yellowish; ovary superior, 2-locular, style short, stout, bilobed to bifid, stigmas 2, small. Fruit a drupe, generally 1-seeded via reduction; seed ellipsoid, endosperm wanting.

TYPE: *Krugiodendron ferreum* (M. Vahl) Urban.

A monotypic, New World genus, occurring in southern Florida, southern Mexico to Honduras, and the West Indies.

Krugiodendron ferreum (M. Vahl) Urban, Symb. Antill. **3:** 314. 1902. FIGURE 70.

Basionym: *Rhamnus ferreus* M. Vahl *in* West, Bidr. Beskr. Ste. Croix 203. 1793. Type: St. Croix, *von Rohr & West s.n.* (C).

Syn.: *Myginda integrifolia* Poiret *in* Lam., Encycl. **4:** 396. 1797. (Type: Martinique, *Martin s.n.* (holotype, P-LA; IDC 6207. 125: II. 1, photo!).)
Ziziphus emarginatus Sw., Fl. Ind. Occid. **3:** 1954. 1806. (Type: St. Barts, *Fahlberg s.n.* (S, SBT, or UPS).)
Ceanothus ferreus (M. Vahl) DC., Prodr. **2:** 30. 1825.
Scutia ferrea (M. Vahl) Brongn., Mem. Fam. Rham. 56. 1826; Ann. Sci. Nat. (Paris) **10:** 363. 1827.
Condalia ferrea (M. Vahl) Griseb., Fl. Brit. W. Indian Is. 100. 1860.
Crossopetalum integrifolium (Poiret) Kuntze, Revis. Gen. Pl. **1:** 116. 1891.
Rhamnidium ferreum (M. Vahl) Sarg., Silva **2:** 29, *t. 58.* 1891.

Small tree, commonly shrublike to 6(-10) m tall; trunk broad, 20(-50) cm in diameter, with spreading branches; young twigs puberulent. Leaves with petioles 2-5 mm long, puberulent; blades ovate to elliptic or broadly elliptic, 1.9-6.4 × 1.4-3.7 cm, base obtuse to slightly cuneate, apex acute to obtuse, commonly emarginate, midvein mucronulate, dark green, shiny above, dull beneath, puberulent along veins when young, nearly glabrous at maturity. Inflorescences shorter than leaves, peduncles 1-5.5 mm long, puberulent. Flowers fragrant of almonds; pedicels subsessile to 6 mm long (in fruit), basally puberulent; sepals 1-2 mm long. Fruits ellipsoid to subglobose, 5-7 mm long, apiculate, black.

GENERAL DISTRIBUTION: As for the genus.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts!, Barbuda, Antigua!, St. Eustatius!, Guadeloupe!, La Désirade!, Marie Galante!, Dominica, Martinique, St. Vincent, the Grenadines!.

COMMON NAMES: Petit bois de fer, bois de fer blanc, bois petites feuilles, ebony, berries tree.

REYNOSIA Griseb.

Reynosia Griseb., Cat. Pl. Cub. 33. 1866.

Evergreen shrubs or small trees, plants unarmed (at least without stipular spines or axillary thorns). Leaves opposite; blades entire, thick-coriaceous;

stipules connate, persistent. Inflorescences axillary, sessile, fasciculate cymes, occasionally reduced to a single flower. Flowers perfect, 5-merous, pedicellate, yellowish-green; sepals slightly longer than short-campanulate floral tube, not crested or keeled within, spreading, deciduous; petals present or absent, slightly concave, short-clawed, partially enclosing stamens; stamens with subulate filaments, anthers ellipsoid; disk fleshy, lining floral tube; ovary superior, bilocular, style short, stout, bilobed, stigmas 2, small. Fruit a drupe, unilocular and 1-seeded via reduction of second locule; seed ovoid-subglobose, endosperm copious, ruminate.

LECTOTYPE: *Reynosia retusa* Griseb. (See N. L. Britton, N. Amer. Trees 673. 1908.) The ING incorrectly lists *Reynosia latifolia* Griseb. as the lectotype, per K. Suessenguth *in* A. Engler & K. Prantl, Nat. Pflanzenfam. ed. 2, **20d:** 136. 1953.

Primarily a Greater Antillean genus of approximately 16 species, extending into southern Florida and the extreme northern portion of the Lesser Antilles.

Reynosia uncinata Urban, Symb. Antill. **1:** 355. 1899. FIGURE 71.

Syntypes: Puerto Rico, *Sintenis 3770, 4814,* & *4825* (B, presumably destroyed; isosyntypes probably extant).

Shrub or small tree 1.5-3 m tall; young twigs puberulent, glabrescent. Leaves with petioles 0.5-3 mm long, adaxially puberulent; blades obovate to oblong or elliptic, 0.6-3.4 × 0.3-1.9 cm, base obtuse or rounded, apex rounded to truncate, commonly emarginate, midvein impressed above and apically prolonged into a hidden, minute, recurved cusp, rigid, glabrous; stipules lanceolate-triangular. Inflorescences shorter than leaves. Flowers with pedicels 2-8 mm long, glabrous; sepals 1.5-2 mm long; petals broadly obovate to suborbiculate, 1-1.25 mm long, apex emarginate. Fruits ovoid-ellipsoid to subglobose, 10-14 × 9-12 mm, apiculate, purple-black to black.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, the Virgin Islands, and Anguilla.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!.

COMMON NAME: Sloe.

NOTE: In addition to this species, a single collection in the Gray Herbarium from St. Vincent, labeled *Celastrus sarcomphalus* without other data, is actually *Reynosia septentrionalis* Urban. This species is native to Cuba and the Bahamas, and this specimen was probably cultivated in the St. Vincent Botanic Garden.

ZIZIPHUS Miller

Ziziphus Miller, Gard. Dict. abr. ed. 4. 1754.

Syn.: *Sarcomphalus* P. Browne, Civ. Nat. Hist. Jamaica 179. 1756, Type: *Rhamnus sarcomphalus* L. = *Ziziphus sarcomphalus* (L.) M. Johnston.

Condalia subg. *Condaliopsis* Weberb. *in* Engl. & Prantl, Nat. Pflanzenfam **3**(5): 404. 1895.

Condaliopsis (Weberb.) Suesseng. *in* Engl. & Prantl, Nat. Pflanzenfam. ed. 2, **20d:** 134. 1953. Type: *Condaliopsis lycioides* (A. Gray) Suesseng. (*Ziziphus lycioides* A. Gray) = *Ziziphus obtusifolia* Hook. ex Torrey & A. Gray var. *obtusifolia.*

Deciduous shrubs or small trees, armed with stipular spines or axillary thorns. Leaves alternate; blades entire to serrate, principally 3-nerved, chartaceous to coriaceous. Inflorescences axillary, few-flowered cymes, sessile and fasciculate or peduncled and thyrsiform. Flowers perfect, 5-merous, pedicellate, green to yellowish-white; sepal lobes distinctly longer than flattened floral tube, keeled medially within, deciduous; petals strongly concave, unguiculate, claw equal to or longer than suborbiculate limb; stamens initially hooded by, but ultimately emergent and longer than, petals, filaments subulate, anthers ovoid-ellipsoid; disk fleshy, 5- or 10-lobed, surrounding ovary; ovary superior but appearing semi-inferior to inferior, glabrous or pubescent to densely pubescent, 2- or 3-locular, style bi- or trifid, swollen toward base, stigmas 2 or 3, small. Fruit a drupe with a single 2- or 3-celled stone; seeds elliptic, flattened, brown.

LECTOTYPE: *Rhamnus ziziphus* L. = *Ziziphus jujuba* Miller, non (L.) Lam. (See N. L. Britton and P. Wilson, Bot. Porto Rico **5:** 535. 1924.) The ING incorrectly attributes the selection of the lectotype to K. Suessenguth *in* A. Engler & K. Prantl, Nat. Pflanzenfam. ed. 2, **20d:** 124. 1953.

A pantropical genus of perhaps 100 species. Two Old World species, *Z. jujuba* Miller and *Z. mauritiana* Lam. are commonly cultivated in the New World for their edible fruits, the jujube. Only the latter occurs in the Lesser Antilles. For additional information see M. Johnston, Amer. J. Bot. **50:** 1020-1027. 1963 and **51:** 1113-1118. 1964.

KEY TO THE SPECIES

1. Leaves pubescent to densely tomentose beneath; pedicels and calyx pubescent-tomentose; leaf margin serrate or serrulate (at least toward the apex).
    2. Ovary densely pubescent; style trifid; fruits 1-1.5 cm long; leaves tawny-ferrugineous pubescent beneath, sparsely pubescent above; leaf margin serrulate, at least toward the apex; plant with axillary thorns, similar in size and orientation . . . . *Z. reticulata*
    2. Ovary glabrous; style bifid; fruits 2-3 cm long; leaves densely white-tomentose beneath, glabrous above; leaf margin serrate; plant with stipular spines, commonly dissimilar in size and direction of curvature . . . . *Z. mauritiana*
1. Leaves glabrous; pedicels and calyx glabrous; leaf margin entire . . *Z. rignonii*

Ziziphus mauritiana Lam., Encycl. **3:** 319. 1789. FIGURE 72.

Type: Mauritius, *Sonnerat s.n.* (holotype, P-LA; IDC 6207. 126: III. 4, photo!).
Syn.: *Rhamnus jujuba* L., Sp. Pl. **1:** 194. 1753. (Type: not designated.)
Ziziphus jujuba (L.) Lam., Encycl. **3:** 318. 1789, non Miller (1768).
Ziziphus tomentosa Poiret, Encycl. Suppl. **3:** 192. 1813, non Roxb. (1814). (Type: Santo Domingo = Haiti, *Poiteau s.n.* (holotype in herb. Desfontaines, now at FI).)
Ziziphus poiretii Don, Gen Hist. **2:** 26. 1832, illegit. nom. nov. for *Ziziphus tomentosa* Poiret.

Shrub or small tree, 2-10 m tall, with paired stipular spines, these often dissimilar in size and direction of curvature, glabrescent; young twigs white tomentose. Leaves with petioles 3-16 mm long, densely tomentose; blades ovate to elliptic or broadly ovate, rarely suborbiculate, 3.1-7.2 × 2-4.6 cm, base rounded to obtuse, apex rounded, rarely slightly acute, margin finely serrate, chartaceous, glabrous above, densely white, or less often brown-gray, tomentose beneath. Inflorescences fasciculate or short-pedunculate, thyrsiform. Flowers ill-smelling; pedicels to 8 mm long, densely tomentose; sepals 1.25-2 mm long, abaxially tomentose; petals 1-1.25 mm long; disk distinctly 10-lobed; ovary glabrous, style bifid. Fruits ellipsoid to subglobose, 2-3 cm long, brown-orange to orange; stone 2-celled.

GENERAL DISTRIBUTION: Native to Asia and Africa, cultivated and frequently naturalized from southern Florida and California through Mexico, Central America, and the West Indies to South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts, Antigua, Montserrat!, Guadeloupe!, La Désirade!, Dominica!, Martinique!, St. Lucia!, Grenada!, Barbados!.

COMMON NAMES: Surette, pomme-surette, jujube, jujubier, stink tree, dunks.

Ziziphus reticulata (M. Vahl) DC., Prodr. **2:** 20. 1825 (as 'Zizyphus').

Basionym: *Paliurus reticulatus* M. Vahl, Eclog. Amer. **3:** 6, *t. 23.* 1807.
Type: "America meridionali," *von Rohr s.n.* (holotype, C; IDC 2201. 51: II. 1, photo!).
Syn.: *Sarcomphalus reticulatus* (M. Vahl) Urban, Symb. Antill. **1:** 357. 1899.

Shrub or small tree, 2-8 m tall, with straight axillary thorns, similar in size and orientation, glabrescent; young twigs ferrugineous pubescent to densely pubescent. Leaves with petioles 2-9.5 mm long, pubescent; blades elliptic to suborbiculate, occasionally slightly obovate, 2.8-5.6 × 2.3-4.5 cm, base obtuse to rounded or subcordate, apex rounded to obtuse, margin often entire below middle and serrulate above, less often serrulate throughout, chartaceous to thin-coriaceous, sparsely pubescent above, coarsely reticulate and tawny-ferrugineous pubescent beneath. Inflorescences thyrsiform, peduncle to 1.3 cm long, densely pubescent. Flowers with pedicels ca. 2 mm long, densely pubescent-tomentose; sepals 1-1.25 mm long, abaxially tomentose; petals ± equal to sepals in length; disk 5- or obscurely 10-lobed; ovary pubescent to densely pubescent, style trifid. Fruits subglobose, 1-1.3 cm long, to

1.4 cm in diameter, dark brown; stone generally 3-celled (occasionally 2-celled by abortion).

General distribution: Hispaniola, Puerto Rico, the Virgin Islands, and the northern Lesser Antilles.

Distribution in Lesser Antilles: Barbuda!, Antigua!.

Common name: Ironwood.

Note: The thorns of this species and the next appear identical in position to the stipular spines in *Z. mauritiana*. However, according to Malme (Bot. Tidsskr. 14: 190-193. 1920.) and Johnston (1963), they are modified lateral shoots of the lower nodes of the axillary buds, the stipules being minute and early-caducous. If one wishes to separate these two taxa from *Z. mauritiana* on the basis of the armature (not advisable), the thorns are always straight, whereas the paired spines are usually one straight and the other distinctly curved.

Ziziphus rignonii Delponte, Mem. Reale Accad. Sci. Torino ser. 2, **14:** 404, *t. 7.* 1854; Stirp. Exot. Rar. 15, *t. 7.* 1854.

Type: Puerto Rico, 1818, *Bertero s.n.* (holotype, TO).
Syn.: *Cassine domingensis* Sprengel, Syst. Veg. **1:** 939. 1824. (Type: Hispaniola, *Bertero s.n.* (location unknown; if part of the Sprengel herb., then destroyed).)
Sarcomphalus domingensis (Sprengel) Krug & Urban, Symb. Antill. **1:** 357. 1899.

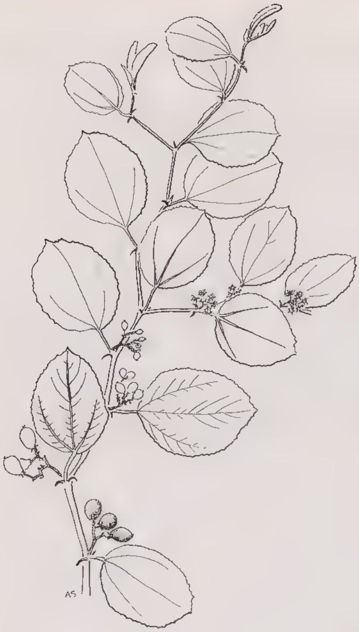
Shrub or more commonly a small tree, 4-13 m tall, with axillary thorns, at least on older branches, glabrous throughout. Leaves with petioles 4-7 mm long; blades ovate-elliptic to elliptic to suborbiculate, 2.8-6.7 × 2.2-5 cm, base rounded to slightly subcordate, apex rounded, commonly retuse to emarginate, margin entire, coriaceous. Inflorescences thyrsiform, peduncle 8-18 mm long. Flowers with pedicels to 6 mm long; sepals 1-1.75 mm long; petals ± equal to sepals in length; disk 10-lobed; style trifid. Fruits subglobose or ellipsoid, 8-9 mm long, green becoming dark brown; stone 3-celled.

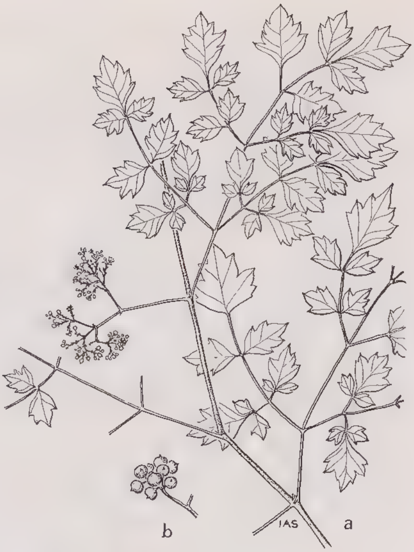
General distribution: Hispaniola, Puerto Rico, the Virgin Islands, and extreme northern Lesser Antilles.

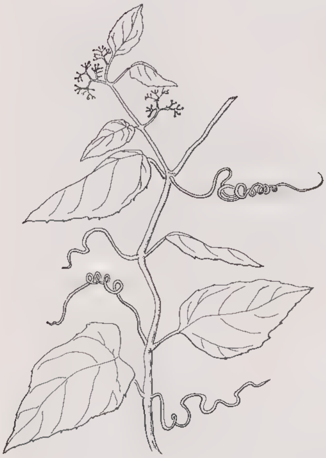
Distribution in Lesser Antilles: Anguilla!, St. Martin.

Common name: Thorn.

Note: Although *Cassine domingensis* predates *Ziziphus rignonii*, the appropriate combination in *Ziziphus* can not be legitimately made as that name is preoccupied by *Ziziphus domingensis* Duhamel (= *Colubrina elliptica* (Sw.) Briz. & W. Stern). Therefore, the next available name is that of Delponte.







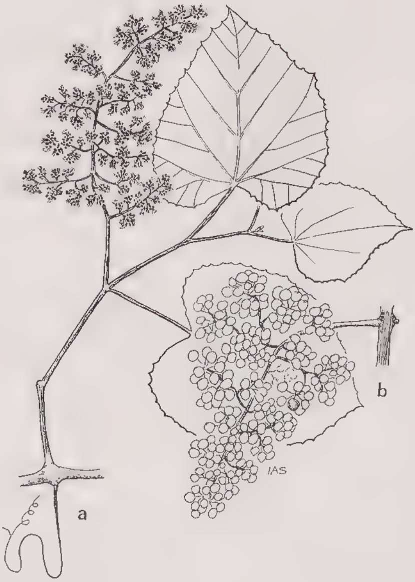


FIGURE 72 (upper left). *Ziziphus mauritiana*, × 0.3. FIGURE 73 (upper right). *Ampelopsis arborea*: a, habit, × 0.3; b, fruit, × 0.3. FIGURE 74 (lower left). *Cissus verticillata*, × 0.3. FIGURE 75 (lower right). *Vitis tiliifolia*: a, flowering branch, × 0.3; b, fruiting cluster, × 0.3.

VITACEAE

by Allan J. Bornstein

VITACEAE A. L. Juss., Gen. Pl. 267. 1789 ('Vites').

Woody vines climbing by leaf-opposed tendrils, or less often shrubs; branches commonly with swollen nodes. Leaves alternate, petiolate; blades simple or palmately or pinnately compound; stipules small and deciduous. Inflorescences leaf-opposed and occasionally terminal, compound cymes, thyrses, or panicles, pedunculate. Flowers small, regular, perfect or unisexual (plants generally polygamous), 4-or 5-merous; sepals connate, calyx small and saucerlike; petals valvate, distinct and spreading or apically coherent and caducous as a unit at anthesis; stamens free, antipetalous, sterile in female flowers, filaments filiform or subulate, anthers introrse, dorsifixed; disk intrastaminal, ± cupuliform; ovary superior, often hidden in disk and variously fused to it, rudimentary in male flowers, generally 2-locular, ovules 2 per cell, style long or short, solitary, stigma small, usually simple. Fruit a 1- to 4-seeded berry, generally fleshy and juicy; seeds with copious endosperm.

TYPE: *Vitis* L.

Primarily a pantropical family of about 12 genera and 700 species, but extending into temperate areas. Economically important for grapes (*Vitis* spp.) and their derivatives (wine, raisins, currants), and as ornamentals (*Parthenocissus* spp.). For additional information see J. E. Planchon *in* A. L. P. P. de Candolle, Monogr. Phan. **5**(2): 305-654. 1887; K. Suessenguth *in* A. Engler & K. Prantl, Nat. Pflanzenfam. ed. 2, **20d:** 174-371. 1953; and G. K. Brizicky, J. Arnold Arbor. **46:** 48-67. 1965.

KEY TO THE GENERA

1. Petals spreading at anthesis, distinct; inflorescence a cyme or thyrse; pith white.
    2. Flowers 4-merous; leaves simple or trifoliate .... *Cissus*
    2. Flowers 5-merous; leaves bi- to tripinnate .... *Ampelopsis*
1. Petals apically coherent, falling as a unit at anthesis; inflorescence a panicle; pith brown .... *Vitis*

AMPELOPSIS Michaux

Ampelopsis Michaux, Fl. Bor.-Amer. **1:** 159. 1803, emend. Planchon *in* A. DC., Monogr. Phan. **5**(2): 453. 1887.

Deciduous woody vines or bushy shrubs; tendrils few and scattered. Leaves bi- to tripinnate, membranous. Inflorescences leaf-opposed thryses. Flowers perfect or unisexual, 5-merous, greenish; petals distinct and spreading at anthesis; disk cupular, with lower portion adnate to ovary, margin shallowly lobed or crenulate; ovary bilocular, style elongate, subulate. Fruits subglobose, flesh thin, black.

LECTOTYPE: *Ampelopsis cordata* Michaux (see Rafinesque, Sylva Tellur. 88. 1838).

A tropical and warm-temperate genus of approximately 25 species occurring in Asia (mainly China) and North America (the United States, west-central Mexico, and portions of the West Indies).

Ampelopsis arborea (L.) Koehne, Deut. Dendrol. 400. 1893. FIGURE 73.

Basionym: *Vitis arborea* L., Sp. Pl. **1:** 203. 1753.
Type: Not designated (a specimen exists in the Linnaean Herbarium (LINN 281.11)).
Syn.: *Ampelopsis bipinnata* Michaux, Fl. Bor.-Amer. **1:** 160. 1803, nom. illegit. for *Vitis arborea* L.
Cissus stans Pers., Syn. Pl. **1:** 143. 1805, nom. illegit. for *Vitis arborea* L.
Vitis pinnata (Michaux) Torrey & A. Gray, Fl. N. Amer. **1:** 243. 1838.
Ampelopsis arborea (L.) Rusby, Mem. Torrey Bot. Club **5:** 221. 1894.

Leaves bi- to tripinnate on same plant, to 12 cm long; petioles 0.8-2.2 cm long; rachis very sparsely pubescent; leaflets ovate to rhombic-ovate, 0.6-3.1 × 0.3-3.1 cm, base obtuse to subcordate or cuneate, apex acute to short-acuminate, margin coarsely toothed, rarely subentire, dark green above, paler green beneath, very sparsely pubescent along veins or in vein axils. Inflorescences with peduncles to 3.2 cm long; rachis and pedicels sparsely pubescent. Flowers with sepals depressed-ovate, ca. 0.3 mm long, ciliolate; petals oblong-ovate, 1-1.75 mm long, ciliolate. Fruits 0.4(-1) cm long.

GENERAL DISTRIBUTION: Florida to Texas, north to Oklahoma, Missouri, southern Indiana, Illinois, Ohio, Virginia and Maryland; Cuba, Puerto Rico, and the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Barbuda!.

NOTE: This genus has not been previously reported for the Lesser Antilles and is currently known only from a collection by Paul Rich in 1980. The description is based on material from the West Indies.

CISSUS L.

Cissus L., Sp. Pl. **1:** 117. 1753.

Syn.: *Spondylantha* Presl, Reliq. Haenk. **2:** 35. 1831. (Type: *Spondylantha aphylla* Presl.)

Deciduous woody vines. Leaves simple, unlobed (in our species) or palmately trifoliolate. Inflorescences leaf-opposed, compound umbelliform cymes. Flowers usually perfect, 4-merous, green to red; petals distinct and spreading or reflexed at anthesis; disk cupular, adnate to upper portion of ovary, free upper margin 4-lobed to subentire; ovary bilocular (incompletely so ?), style elongate, filiform. Fruits subglobose-ovoid to obovoid, dark purple to black.

TYPE: *Cissus vitiginea* L.

A pantropical genus of approximately 350 species. The genus is in need of a modern revision.

CULTIVATED SPECIES

According to Fournet (1978, p. 1139), two species, *C. discolor* Blume from Java and *C. quadrangularis* L. from Africa, are cultivated in gardens on the islands of Guadeloupe and Martinique. Both are vegetatively similar to *C. verticillata* in their simple leaves, but the former can be distinguished by the leaves variegated above and red-purple beneath, and the latter by the strongly quadrangular, succulent stems. No actual collections from the Lesser Antilles have been observed.

DOUBTFUL SPECIES

Two other species with trifoliolate leaves, *C. trifoliata* (L.) L. ranging from Florida through the Greater Antilles, and *C. erosa* Rich. from Central America, Hispaniola, Puerto Rico, and Trinidad-Tobago, have been reported for the larger islands (Guadeloupe, Dominica, Martinique, and St. Vincent) of the Lesser Antilles. These reports have not been confirmed with actual specimens and their occurrence in the area is suspect.

KEY TO THE SPECIES

Leaves simple	*C. verticillata*
Leaves trifoliolate	*C. obovata*

Cissus obovata M. Vahl, Symb. Bot. **3:** 19. 1794.

Type: St. Croix, *West s.n.* (holotype, C).

Syn.: *Cissus caustica* Tussac, Fl. Antill. **1:** 116, *t. 16.* 1808-1813. (Type: not determined.)

Cissus trifoliata (L.) L. var. *caustica* (Tussac) Griseb., Pl. Wright. 165. 1860; Mem. Amer. Acad. Arts **8:** 165. 1861.

Cissus trifoliata (L.) L. var. *obovata* (M. Vahl) Griseb., Pl. Wright. 165. 1860; Mem. Amer. Acad. Arts **8:** 165. 1861.

Stems somewhat succulent, older twigs and branches conspicuously warty, glabrous to puberulent, less often pubescent. Leaves trifoliolate, with petioles 0.8-5.5 cm long, glabrous or rarely pubescent; leaflets subsessile to distinctly petiolulate, terminal leaflet larger and longer-stalked; blades obovate to elliptic, lateral leaflets commonly oblique, 1.1-6.2 × 0.8-4.8 cm, base cuneate to rounded, apex rounded to acute, margin subentire to serrate above middle, sparsely pilose-pubescent beneath (especially when young) to glabrous, less often pubescent on both surfaces. Inflorescences sparsely pilose-puberulent to glabrous, with peduncles 0.7-3.7 cm long. Flowers and subtending pedicels crimson red; pedicels 1.5-6 mm long; calyx ca. 1 mm long with obscure lobes (essentially entire); petals triangular-ovate, 1-2.5 mm long;

disk ± 4-lobed, free upper margin to ca. 5 mm high; style to 1.5 mm long. Fruits globose-obovoid, 4 mm long, black.

GENERAL DISTRIBUTION: Cuba, Hispaniola, Puerto Rico, the Virgin Islands, and the northern Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts!, Barbuda!.

COMMON NAME: None known for the Lesser Antilles, but called liane noir in Haiti.

NOTES: On the basis of the descriptions provided by Vahl and Tussac, I find no differences upon which to distinguish *C. obovata* from *C. caustica.* Britton & Wilson (Bot. Porto Rico **5:** 539. 1924) use leaf size and petiole length differences to separate these taxa. Over the range of the species these features intergrade, and the extremes in form are not geographically correlated in any way. Therefore, the reduction of *C. caustica* to a synonym of *C. obovata* seems justified.

Apparently this species has a rather acrid sap, hence the epithet 'caustica' used by Tussac.

Cissus verticillata (L.) Nicolson & Jarvis, Taxon **33:** 727. 1984.FIGURE 74.

Basionym: *Viscum verticillatum* L., Sp. Pl. **2:** 1023. 1753.

Lectotype: LINN 1166.10; see Nicolson & Jarvis, 1984.

Syn.: *Cissus sicyoides* L., Syst. Nat. ed. 10, **2:** 897. 1759. (Lectotype: P. Browne, Civ. Nat. Hist. Jamaica *t. 4, fig. 1, 2.* 1756; see Nicolson & Jarvis, 1984.)

Cissus ovata Lam., Tabl. Encycl. **1:** 331. 1791, nom. illegit. citing P. Browne, Civ. Nat. Hist. Jamaica *t. 4, fig. 1, 2.* 1756.

Spondylantha aphylla Presl, Reliq. Haenk. **2:** 35, *t. 53.* 1831. (Type: Mexico, *Haenke s.n.* (holotype, PR).)

Vitis sicyoides (L.) Morales, Repert. Fis. Nat. Cuba **1:** 206. 1866.

Phoradendron verticillatum (L.) Druce, Bot. Exch. Club Soc. Brit. Isles **3:** 422. Feb. 1914, non Fawcett & Rendle, (Nov. 1914) = *Phoradendron trinervium* (Lam.) Griseb.

Stems somewhat succulent, essentially glabrous. Leaves with petioles 0.7-3.7 cm long; blades simple, ovate to broadly ovate or oblong-ovate, 3.7-10.7 × 2.7-8.2 cm, base truncate to cordate or subcordate, apex acute to short-acuminate, margin serrate, fleshy but drying membranous, glabrous to puberulent beneath. Inflorescences glabrous except for ciliolate bracts and bractlets, with peduncles to 4 cm long. Flowers greenish-yellow to pink or red; pedicels 1.5-4 mm long; sepals ovate to depressed ovate, 0.5-0.75 mm long; petals triangular-ovate, 1.5-2 mm long; disk distinctly 4-lobed, free upper margin ca. 0.3 mm high, yellow; style to 1.5 mm long. Fruits obovoid to subglobose, 5-7 × 4-6 mm, black.

GENERAL DISTRIBUTION: Southern Florida, Mexico, Central America, the West Indies, and northern South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla, St. Martin, St. Barts!, Barbuda, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Marie

Galante!, Les Saintes!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Liane-molle, liane-à-eau, liane-à-chasseurs, liane-brulante, liane-douce, liane-corde, pudding bush, godmort, snake vine.

NOTES: This species, along with *C. trifoliata*, is often infested with a smut fungus, *Mycosyrinx cissi* (Poiret) Beck, which transforms the flowers into elongate, cylindrical, spore-bearing structures. The genus *Spondylantha* Presl is based on this abnormality.

For a complete discussion regarding the nomenclature of this species, see the Nicolson & Jarvis article, where it should be noted that the publication of *Spondylantha aphylla* is incorrectly cited as ''Rel. Haenk. **3:** 35, *t. 53.* 1836,'' an impossiblity given that volume 3 does not exist.

VITIS L.

Vitis L., Sp. Pl. **1:** 202. 1753.

Deciduous woody vines with bark commonly exfoliating in thin shreds. Leaves simple, often palmately lobed, dentate. Inflorescences leaf-opposed panicles with flowers in umbelliform clusters. Flowers perfect or unisexual (plants polygamodioecious), 5-merous; petals apically coherent, separating only at base and deciduous as a unit at anthesis (calyptriform); stamens straight in male and bisexual flowers, reflexed and sterile in female flowers; disk appearing as 5 ± distinct glands alternate with stamens; ovary rudimentary in male flowers, bilocular, style conical, short. Fruits globose, purple to black.

LECTOTYPE: *Vitis vinifera* L. (see N. L. Britton & A. Brown, Ill. Fl. N. U.S. ed. 2, **2:** 505. 1913).

A genus of ca. 60 species, primarily occurring in the temperate regions of the northern hemisphere.

CULTIVATED SPECIES

Vitis vinifera L., the European or Wine grape, native to the Mediterranean region, is cultivated throughout the West Indies, including various islands in the Lesser Antilles. It can be distinguished from *Vitis tiliifolia*, a native species, by the leaves distinctly 5-lobed vs. simple or slightly 3-lobed.

Vitis tiliifolia Roemer & Schultes, Syst. Veg. **5:** 320. 1819. FIGURE 75.

Type: America meridionali, *Humboldt & Bonpland s.n.* (holotype, B-W; IDC 7440. 340: II. 4, 5, 6, photo!.)

Syn.: *Vitis caribaea* DC., Prodr. **1:** 634. 1824. (Type: Puerto Rico, *Bertero s.n.* (holotype, G-DC; IDC 2562. **245:** II. 4, 5, photo!).)

Vitis vinifera L. var. *tiliifolia* (Roemer & Schultes) Kuntze, Revis. Gen. Pl. **1:** 132. 1891.

Vitis vinifera L. var. *tiliifolia* (Roemer & Schultes) Kuntze forma *caribaea* (DC.) Kuntze, Revis. Gen. Pl. **1:** 132. 1891.

Stems floccose-tomentose, glabrate. Leaves simple or obscurely 3-lobed, with petioles 2.2-8 cm long, floccose-tomentose, glabrate; blades broadly ovate to suborbiculate (4.5-)6.5-15.2 × 6.3-14.1 cm, base cordate or occasionally truncate, apex acute to short-acuminate, floccose-tomentose on both surfaces when young, becoming glabrate at least above. Inflorescences elongate, with peduncles 1.6-9.3 cm long, floccose-tomentose throughout. Flowers yellow-green; pedicels 2-4 mm long, glabrous; sepals ca. 0.25 mm long; petals oblong to oblong-obovate, 1.5-2 mm long; stamens 1.5-2.25 mm long. Fruits 6-12 mm in diameter.

GENERAL DISTRIBUTION: Florida (?), Mexico, Central America, the West Indies, and northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts, Guadeloupe, La Désirade!.

COMMON NAME: Vin sauvage.

NOTE: The author citation of this species is often given as Humb. & Bonpl. [ex Willd.] *in* Roemer & Schultes. It is quite apparent that Humboldt & Bonpland had nothing to do with the publication of this species other than having collected the type specimen. The situation is completely analogous to the majority of the descriptions in Nova Genera et Species Plantarum in which Kunth is the actual author, even though the authorship is commonly cited as H.B.K. If desirable, the author citation may be listed as 'Willd. ex' Roemer & Schultes since the name and description are attributable to a Willdenow manuscript (see recommendation 46E in the ICBN).

ELAEOCARPACEAE

by Allan J. Bornstein

ELAEOCARPACEAE DC., Prodr. **1:** 519. 1824 ('Elaeocarpeae').

Trees or shrubs. Leaves alternate or opposite; blades simple, entire to ± dentate; stipules present, persistent or early-deciduous. Inflorescences axillary racemes, panicles, or cymes (dichasia). Flowers regular, perfect, commonly apetalous; sepals 4 to 9, free, valvate; stamens numerous, distinct, anthers dehiscent by apical pores or longitudinal slits, connective prolonged beyond anther sacs into a knob or awn; ovary superior, 3- to 6-locular (mostly 4-locular), ovules 8 to 10 per locule, borne in two rows on axile placentae, style simple or divided into as many segments as locules. Fruit a loculicidal capsule or drupe; seeds arillate, with abundant endosperm.

TYPE: *Elaeocarpus* L.

A tropical and subtropical family of about 10 genera and 400 species. Most of the species belong to either of two genera, *Elaeocarpus* or *Sloanea*. Only the latter occurs in the Lesser Antilles. The family ranges from Mexico to South America, including the West Indies, in the New World, and from East Asia through Indomalaysia to Australia and the Pacific Islands in the Old

World. The family is closely related to, and occasionally included in, the Tiliaceae.

SLOANEA

Sloanea L., Sp. Pl. **1:** 512. 1753.

Characters as for the family with the following additions and specifications. Trees commonly with buttressed trunks. Leaves alternate (in our species). Flowers apetalous; anthers dehiscent by longitudinal slits (in our species). Fruit a loculicidal capsule, (3-)4-(5-)valved, the valves rigid and woody, unarmed or armed with spines; seeds 1 or 2 per capsule (rarely more).

A genus of 110 to 120 species occurring in the New World from west-central Mexico, through Central America and the West Indies, to central South America. In the Old World the genus ranges from East Asia, through Indomalaysia and the Philippines, to Australia-New Caledonia. For additional information on the New world species see C. E. Smith, Contr. Gray Herb. **175:** 1-114. 1954; for the Old World species see M. J. E. Coode, Kew Bull. **38:** 347-427. 1983.

KEY TO THE SPECIES IN FLOWER

1. Calyx of 5 to 9 sepals, unequal in size and shape, not covering the reproductive organs in bud.
    2. Connective prolonged into an elongate awn, ± as long as the anther sac; filaments puberulent; stipules long-persistent, 10-20 mm long, margin with few to many linear serrations .... *S. dentata*
    2. Connective prolonged into a knob, much shorter than the anther sac; filaments glabrous; stipules early-deciduous, < 10 mm long, margin entire .... *S. massoni*
1. Calyx of 4 sepals, equal in size and shape, completely covering the reproductive organs in bud.
    3. Inflorescence a raceme .... *S. berteriana*
    3. Inflorescence a compound cyme (dichasium) .... *S. caribaea*

NOTE: *Sloanea dussii* is not known in flower.

KEY TO THE SPECIES IN FRUIT

1. Capsules unarmed.
    2. Inflorescence a raceme; capsules 3-4 cm long, valves 4-6 mm thick; primary peduncle 0.6-2.7 cm long .... *S. berteriana*
    2. Inflorescence a compound cyme (dichasium); capsules 1.3-2.1 cm long, valves 2-3 mm thick; primary peduncle 1.8-5.5 cm long .... *S. caribaea*
1. Capsules armed with spines.
    3. Capsules 5-9 cm long; spines semi-rigid, curved, strongly tapered from base to apex, to 6 cm long; valves 9-18 mm thick .... *S. dentata*
    3. Capsule < 3 cm long; spines flexible, straight, tapered or nearly uniform in diameter, to 2 cm long; valves to 6 mm thick.
        4. Valves 5-6 mm thick; spines to 6 mm long, tapered, glabrous . . *S. dussii*
        4. Valves 2-5 mm thick; spines 6-20 mm long, slender and of nearly uniform diameter, sparsely antrorse-hispidulous .... *S. massoni*

NOTE: As is evident in the keys provided, it is preferable to have fertile specimens to make exact determinations. Leaf dimensions can be significantly smaller on fertile branches as opposed to those of sterile branches, seedlings, or stump shoots. Therefore, one should use leaf size with caution. Nevertheless, as a general rule, *S. caribaea* has the smallest leaves, *S. berteriana* and *S. dussii* have medium-sized leaves, and *S. dentata* and *S. massoni* have the largest leaves. In the descriptions that follow, leaf dimensions are taken from fertile branches.

Sloanea berteriana Choisy ex DC., Prodr. **1:** 516. 1824.

Type: Santo Domingo, *Bertero s.n.* (holotype, G-DC; IDC 2562. 218: I. 4, photo!).

Tree to 25(-30) m tall; twigs sparsely puberulent, glabrate. Leaves with petioles 1.1-3.2 cm long, glabrate; blades elliptic to oblong-elliptic, 6.9-17.8 × 4-8.8 cm, base acute to obtuse, apex rounded to obtuse, margin entire, chartaceous to subcoriaceous, essentially glabrous; stipules entire, early-deciduous, dimensions unknown. Inflorescences racemes to 5 cm long; peduncles 0.6-2.7 cm long, puberulent. Flowers pale yellow; pedicels 0.9-2 cm long, minutely puberulent; sepals 4, equivalent, ovate to ovate-lanceolate, 5-6.5 mm long, adaxially and abaxially puberulent, more densely puberulent along the margins; stamens 4-5 mm long, filaments densely puberulent, slightly longer than the narrow, ellipsoid, puberulent anthers, connective prolonged into a small, puberulent knob; ovary ovoid, very densely puberulent, style 2-5.5 mm long, apically (3-)4-parted, puberulent basally to ca. half its length. Capsules ellipsoid, 2.6-3.8 cm long, 1-or 2-seeded; valves 3-6 mm thick, surface finely puberulent, lacking spines.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, and the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica, Martinique!.

COMMON NAMES: Petit coco, châtaignier petit coco, cocoyer, bullwood.

NOTES: The author of this species is usually cited as Choisy or Choisy *in* DC. In actuality, Augustin de Candolle published the name and description on the basis of a manuscript by Choisy. Therefore, the correct author citation should be Choisy ex DC. or just DC.

The distribution on Montserrat is attributed to a mixed collection (*Howard, et al. 19076*) in which the vegetative material clearly corresponds to *Sloanea dentata* (on the basis of the persistence and form of the stipules), whereas the fruits, collected from the ground (as noted on the collection label) belong to *Sloanea berteriana.* The distinction between these two species on the basis of fruits is readily apparent as indicated in the key.

Sloanea caribaea Krug & Urban ex Duss, Fl. Phan. Antill. Franç. 90. 1897.

Type: Guadeloupe, *Duss 2348* (syntype, B, presumably destroyed; isosyntype, GH!); *Duss 3485* (syntype, B, presumably destroyed; isosyntype, F, photo at GH!).

Tree to 60 m tall; twigs puberulent, glabrate. Leaves with petioles 0.3-1.9 cm long, minutely puberulent, glabrate; blades elliptic to less often obovate-elliptic, 3.8-12.6 × 1.8-7.1 cm, base normally acute to obtuse, apex acute to obtuse or short-acuminate, margin entire, chartaceous to subcoriaceous, essentially glabrous; stipules ovate-lanceolate, entire, puberulent, very early-deciduous, dimensions unknown. Inflorescences compound cymes (dichasia) to 9.1 cm long; primary peduncle 1.8-6 cm long, densely puberulent. Flowers white to cream-white, sweet-smelling; pedicels 0.25-1.2 cm long, densely puberulent; sepals 4, equivalent, ovate to ovate-elliptic, 3-5 mm long, adaxially and abaxially puberulent, but glabrate abaxially; stamens 3-4 mm long, filaments puberulent to densely puberulent, ca. 2 to 3 times shorter than the linear, minutely puberulent to glabrate anthers, connective prolonged into a short glabrous awn; ovary ovoid, densely puberulent, style 2-3 mm long, apex entire, puberulent basally ca. 2/3 its length. Capsules ovoid to globose, 1.3-2.1(-3.2) cm long, 1- or 2-seeded; valves 2-3(-4) mm thick, surface granular-puberulent, lacking spines.

General distribution: Lesser Antilles to northern South America.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

Common names: Acomat-boucan, châtaignier petite feuille, châtaignier, châtaignier 'ti fay.

Sloanea dentata L., Sp. Pl. **1:** 512. 1753.

Lectotype: Plum., Nov. Pl. Amer. 49, *t. 15.* 1703. (See C. E. Smith, Contr. Gray Herb. **175:** 64-65. 1954).

Syn.: *Castanea sloanea* Miller, Gard. Dict. ed. 8. 1768, nom. illegit. for *Sloanea dentata* L.

Sloanea plumerii Aublet, Hist. Pl. Guiane **1:** 536. 1775, nom. illegit. for *Sloanea dentata* L.

Sloanea plumieri Don, Gen. Hist. **1:** 555. 1831, nom. illegit. for *Sloanea dentata* L.

Tree to 40 m tall; twigs densely short-pubescent, glabrate. Leaves with petioles 2.2-14.7(-23.2) cm long, puberulent to densely short-pubescent, glabrate; blades broadly oblong-ovate to ovate-elliptic, 11.2-44.1 × 9.5-24.6 cm, base rounded to obtuse, occasionally acute, apex emarginate to obtusely acute or short-acuminate, margin entire to more commonly irregularly undulate-dentate or sinuate-dentate, especially near apex, chartaceous to coriaceous, puberulent along veins above and beneath, glabrate, especially above; stipules linear to lanceolate, 10-27 mm long, with few to many linear divisions (serrations), pubescent, long-persistent. Inflorescences racemes, 5.5-8.3 cm long; peduncles 0.7-1.5 cm long, densely puberulent. Flowers cream-colored; pedicels 1-1.6 cm long, puberulent; sepals 5 to 9, unequal in size and shape, ovate-lanceolate to lanceolate or lanceolate-linear, 4.5-7 mm long, adaxially and abaxially puberulent; stamens 5-6 mm long, filaments 3-4 mm long, densely puberulent, anthers lenticular, ca. 1 mm long, puberulent, connective prolonged into an awn, 1-1.5 mm long, puberulent; ovary ovoid, densely pubescent to velutinous, style 6-8 mm long, apex briefly 4-parted, the segments often convolute, pubescent to velutinous basally to ca. 2/3 its length. Capsules subglobose to globose, 5-9 cm long, 1- or 2-seeded, maroon (purple-red) within; valves 0.9-1.8 cm thick, surface densely covered with spines; spines ± rigid, usually curved, strongly tapered from base to apex, 0.5-6 cm long, puberulent to glabrous.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!.

COMMON NAMES: Châtaignier grandes feuilles, burrwood.

Sloanea dussii Urban, Symb. Antill. **1:** 361. 1899.

Type: Martinique, *Duss 148* (syntype, B, presumably destroyed); *Duss 1368* (syntype, B, presumably destroyed; isosyntype, as 4042?, at NY and US, photo of NY specimen at GH!).

Tree of unknown dimensions; twigs pubescent, glabrate. Leaves with petioles 1-1.7 cm long, puberulent; blades ovate-elliptic to obovate, ca. 8-14.5 × 4.5-7.25 cm, base subacute to obtuse, apex obtuse to acute, margin entire or obscurely crenulate (?), chartaceous to subcoriaceous, pubescent above, glabrous beneath; stipules linear-lanceolate, 4-10 mm long, entire, pubescent, early-deciduous. Inflorescences unknown. Capsules ovoid to subglobose (?), to ca. 2.5 cm long, 1-seeded (?); valves ca. 5 mm thick, surface densely puberulent with straight, flexible spines ca. 6 mm long, tapered, glabrous.

GENERAL DISTRIBUTION: Known only from Martinique.

COMMON NAMES: Châtaignier coco, petit coco, châtaignier petit coco.

NOTES: This species is very poorly known, not having been collected since 1899. Smith (1954), after examining the available Duss specimens, indicated that there are 4 sepals per flower (on the basis of the sepals persistent in fruit). This perhaps indicates a closer relationship with *S. berteriana* or *S. caribaea*, than *S. dentata* or *S. massoni*.

Sloanea massoni Sw., Prodr. 82. 1788; Fl. Ind. Occid. **2:** 938. 1800.
FIGURE 76.

Type: St. Kitts, *Masson s.n.* (lectotype, BM). (See Howard & Howard, J. Arnold Arbor. **63:** 75. 1982.)

Syn.: *Sloanea aubletii* Sw., Fl. Ind. Occid. **2:** 940. 1800, pro parte as to the Masson specimen from St. Kitts; nom. illegit. for *Sloanea sinemariensis* Aublet.
Sloanea truncata Urban, Notizbl. Bot. Gart. Berlin-Dahlem **8:** 26. 1921. (Type: Guadeloupe, *Duss 3808* (holotype, B; presumably destroyed).)
Sloanea dentata L. var. *massoni* (Sw.) Stehlé, Caribbean Forest. **8:** 303. 1947.
Sloanea sinemariensis sensu auct. as to the Lesser Antilles, non Aublet (1775).

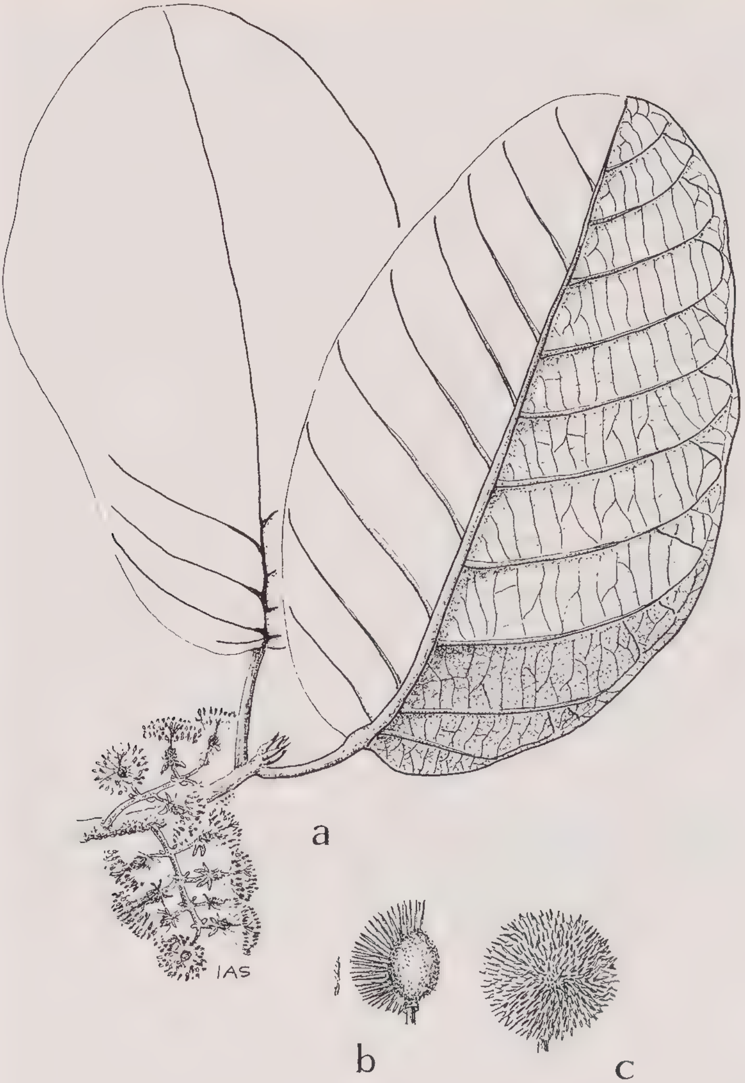


FIGURE 76. *Sloanea massoni*: a, habit, flower, × 0.7; b, fruit with detached spines, × 0.7; c, complete fruit, × 0.7.

Tree to 30 m tall; twigs densely puberulent, glabrate. Leaves with petioles 1.2-9.1(-11.1) cm long, puberulent, glabrate, often marked with numerous transverse cracks; blades broadly ovate to slightly obovate or suborbiculate, 7.9-37.2 × 6.4-20.2 cm, base rounded to obtuse, rarely acute or subcordate, apex obtuse to acute, often emarginate, margin entire to subundulate, coriaceous, puberulent along veins above and beneath; stipules lanceolate, to 10 mm long, short-pubescent, early-deciduous. Inflorescences racemes, to 4.5 cm long; peduncles 0-12 mm long, pubescent. Flowers with pedicels 0.5-12 mm long, pubescent; sepals 5 or more, often irregularly divided into 'extra' lobes, generally linear to lanceolate or ovate-lanceolate, 3-5 mm long, adaxially glabrous, abaxially sparsely pubescent; stamens long-exserted, 6-9 mm long, filaments 4.5-8 mm long, glabrous, anthers oblong, 1-1.5 mm long, connective prolonged into a small knob; ovary ovoid, densely pubescent to velutinous, style 5-7 mm long, apex deeply 4-parted, the segments often convolute, pubescent to velutinous basally to ca. 1/3 its length. Capsules ellipsoid, 1.5-2.6 cm long, generally 1-seeded; valves 2-5 mm thick, surface densely covered with numerous spines; spines flexible, straight, of nearly uniform diameter, ca. 6-20 mm long, sparsely antrorse-hispidulous.

General distribution: Endemic to the Lesser Antilles.

Distribution in Lesser Antilles: Saba!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!.

Common names: Burrwood, châtaignier grande feuille, châtaignier petite feuille, châtaignier, chatonier, bullet tree, red santinee, ironwood, petit coco.

Notes: There has been a good deal of confusion with respect to this species. For quite some time the spiny, small-fruited material was identified as *S. sinemariensis*, *S. massoni* being presumably endemic to St. Kitts. Urban (1921) realized that *S. sinemariensis* was a strictly South American species, and he subsequently named and described *S. truncata* for the material of the Lesser Antilles, unfortunately neglecting the Swartz name. At the same time that this confusion of names was occurring, several authors confused *S. dentata* with these 'small-fruited' species, perhaps because of the similarity of their leaves. Eventually, Smith (1954) corrected this situation, reestablishing *S. massoni* as the small-fruited species, while maintaining *S. dentata* for the large-fruited specimens.

TILIACEAE

by Allan J. Bornstein

TILIACEAE A. L. Juss., Gen. Pl. 289. 1789.

Trees, shrubs, or less often herbs, with vestiture often of stellate hairs, but also of simple hairs or lepidote scales. Leaves alternate, petiolate; blades simple or lobed, margin entire to serrate; stipules usually present. Inflorescences axillary and/or terminal or leaf-opposed cymes, cymose paniculiform thyrses, or reduced to 1- to 3-flowered clusters. Flowers regular, perfect or less often unisexual; sepals normally 4 or 5, but also 2 or 3, valvate, free or partially connate; petals 4 or 5 or absent, distinct, imbricate, valvate, or convolute; gonophore present or absent; stamens numerous, free or basally short-connate into 5 or 10 bundles, filaments elongate, filiform, anthers introrse, medifixed, bithecate, dehiscent by longitudinal slits; ovary superior, 2- to 5-locular, ovules several to 1 per locule, placentation axile, style simple, apically divided. Fruit a capsule or schizocarp or drupaceous, surface naked, winged, or with numerous prickles or bristles.

TYPE: *Tilia* L.

An essentially pantropical family of approximately 45 to 50 genera and over 500 species (excluding the Elaeocarpaceae), but with a few extensions (*Tilia*) into the temperate zone.

CULTIVATED OR INTRODUCED TAXA

Apeiba tibourbou Aublet, Hist. Pl. Guiane **1:** 538. 1775.

Type: Guiana, *Aublet s.n.* (BM, LINN-SM 929.3; IDC 5073. 433: III. 4, photo!).

This species, native to continental tropical America, is known from the Lesser Antilles on the basis of a collection from Martinique (*Stehlé 4640*, US) made from a plant cultivated at the Tivoli Agricultural Station in 1939, and two specimens (*Caley s.n.*, BM and *Guilding s.n.*, K!) made from a tree cultivated in the St. Vincent Botanic Garden. Uittien (Recueil Trav. Bot. Néerl. **32:** 249. 1935) lists these latter two collections as *Apeiba schomburgkii* Szyszyl, but I have not been able to confirm this identification. For present purposes, suffice it to say that the genus *Apeiba*, very distinctive on the basis of its unusual ''sea-urchin'' fruits, is not known to exist among the natural vegetation of the Lesser Antilles.

NOTE: The Caley specimen at BM is apparently marked as ''Catey-Jamaica,'' an obvious error as to the collector and location as Caley never visited Jamaica. For details see A. B. Rendle, J. Bot. **74:** 338. 1936.

Trichospermum grewiifolium (A. Rich.) Kosterm., Reinwardtia **6:** 279. 1962.

Basionym: *Belotia grewiifolia* A. Rich. *in* Sagra, Hist. Phys. Cuba Bot. Pl. Vasc. 83. 1841.
Type: Cuba, Vuelta de Abajo, *Valenzuela s.n.* (holotype, P).
Syn.: *Belotia caribaea* Sprague, Kew Bull. **1921:** 276. 1921. (Type: St. Lucia, *Anderson s.n.* (holotype, K).)
Trichospermum caribaeum (Sprague) Kosterm., Reinwardtia **6:** 278. 1962.

This species is native from southeastern Mexico to Nicaragua, and also occurs in Cuba. It is otherwise unknown from the West Indies. The Anderson specimen, which is the basis of *T. caribaeum*, is probably not from St. Lucia, the label being erroneously applied. Although Anderson did make a few trips to St. Lucia, it is unlikely that this specimen originated there given its present distribution. A more likely explanation is that when Anderson sent his St. Lucia collections to Forsyth at Kew, he also included some material that he collected from specimens growing in the St. Vincent Botanic Garden, the seeds of which were obtained from collectors in Mexico or Cuba with whom Anderson had contact.

The synonymy presented above follows that of W. Meijer (unpublished manuscript) who is currently preparing a taxonomic treatment of the Tiliaceae for Flora Neotropica.

KEY TO THE GENERA

1. Fruits dehiscent, winged or unarmed (lacking prickles or bristles).
    2. Fruits subglobose, each valve of the capsule with 2 conspicuous wings; sepals fused, the calyx 2- or 3-lobed at anthesis; seeds setose . . . . *Berrya*
    2. Fruits linear-oblong, without wings; sepals free, 5 in number; seeds glabrous . . . . *Corchorus*
1. Fruits indehiscent, armed with prickles or bristles.
    3. Flowers 4-merous; fruits laterally compressed, with 2 marginal rows of plumose bristles . . . . *Heliocarpus*
    3. Flowers 5-merous; fruits globose, covered with uncinate prickles . . . . *Triumfetta*

BERRYA Roxb.

Berrya Roxb., Pl. Coromandel **3:** 60, *pl. 264.* 1820 ('Berria'), corr. DC., Prodr. **1:** 517. 1824, orth. & nom. cons.

Syn.: *Carpodiptera* Griseb., Pl. Wright. 163. 1860; Mem. Amer. Acad. Arts ser. 2, **8:** 163. 1861. (Type: *Carpodiptera cubensis* Griseb.).

Trees; young branches stellate-pubescent, older branches glabrate. Leaves simple, entire; stipules usually early-deciduous. Inflorescences axillary and terminal, cymose paniculiform thyrses. Flowers unisexual, (plants dioecious); sepals completely united in bud, partially separating at anthesis into 2 or 3 connate segments, persistent in fruit; petals 5, imbricate-convolute, exceeding calyx; stamens numerous, 15 to 30, sterile in female flowers, inserted on a flattened gonophore, filaments basally fused; ovary sessile, subglobose, bilocular, short pilose, absent from male flowers, ovules 1 per locule, pendulous, style briefly bifid, stigmas irregularly 4-parted. Fruits capsular, loculicidal, each valve with 2 dorsal, elongate, leaflike wings; seeds ovoid-ellipsoid, setose, but soon glabrate.

TYPE: *Berrya ammonilla* Roxb. (= *Berrya cordifolia* (Willd.) Burret.)

As circumscribed at present, the genus consists of perhaps 15 species with an unusual distribution; East Africa and the Indomalaysia-Pacific Island region in the Old World, and Mexico, Central America, and the West Indies in the New World. There is still some debate as to whether *Berrya* and *Carpodiptera* should be treated as congeneric. Many authors choose to retain the Indomalaysia-Pacific Island element as *Berrya* (sensu strictu), while recognizing the African-New World representatives as *Carpodiptera* as originally proposed. The distinctions often cited to maintain these two groups as separate genera are listed in the following table. I am more impressed with the similarities than the differences, hence the relegation of *Carpodiptera* as a synonym of *Berrya.*

	Berrya	Carpodiptera
Flowers:	perfect	unisexual
Gynoecium:	3- to 5-locular	bilocular
Ovules:	2 to 6 per locule	1 per locule
Fruits:	6- to 10-alate	4-alate

Berrya cubensis (Griseb.) M. Gomez, Anales Soc. Esp. Hist. Nat. **19:** 215. 1890. FIGURE 77.

Basionym: *Carpodiptera cubensis* Griseb., Pl. Wright. 164. 1860; Mem. Amer. Acad. Arts ser. 2, **8:** 164. 1861.

Type: Cuba, *Wright 1117* (holotype, GOET; isotypes, GH-2 sheets!).

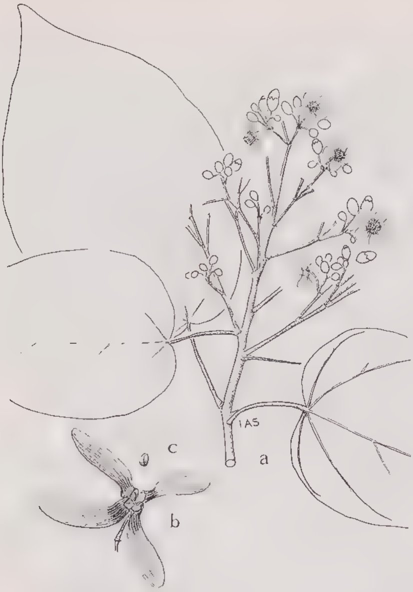
Syn.: *Carpodiptera floribunda* Urban, Symb. Antill. **5:** 412. 1908. (Syntypes: St. Vincent, *Powell 84*, *Smith s.n.*; Grenada, *Broadway 27*, *Eggers 6442* (isosyntype, A!); Trinidad, *Herb. Bot. Gard. 806.*) All syntypes at B, presumably destroyed.

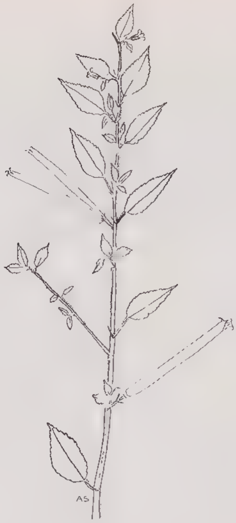
Tree, 10-15 m tall. Leaves with petioles 2.1-6.9 cm long, sparingly puberulent of lepidote-stellate hairs, or glabrous; blades ovate to oblong-ovate, 7.2-16.9 × 5.5-10.6 cm, base subcordate to cordate, apex acuminate, glabrous. Inflorescences several-branched, the axes densely stellate-pubescent. Flowers with pedicels 3-9 mm long, to 1.6 cm in fruit; sepals ovate, often slightly unequal, 5-6 mm long, densely stellate-pubescent without, glabrous within; petals spatulate-cuneate, 8-10 mm long, mauve to purple, glabrous; stamens ± more numerous in male flowers, filaments unequal, connective expanded in fertile stamens resulting in longitudinal but upward dehiscence, the anther halves confluent. Fruits subglobose to obloid, 5-8 × 7-10 mm, 2 wings of each valve divergent, oblong-elliptic to obovate-elliptic, straight or curved, 2.4-3.1 × 0.7-1.5 cm, with small scaly pubescence; seeds 5-6 mm long.

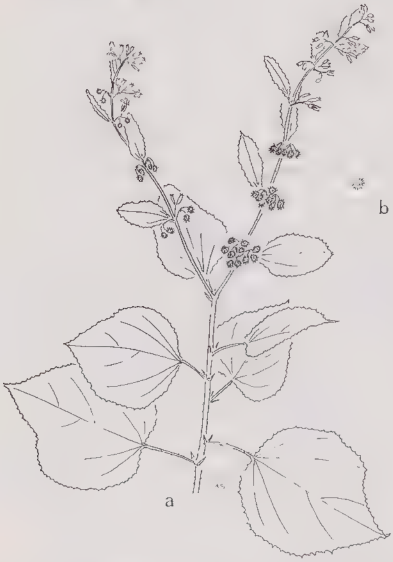
GENERAL DISTRIBUTION: Mexico(?), Cuba, Hispaniola, and the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Martinique, St. Vincent, the Grenadines!, Grenada!.

NOTE: The author of the combination in *Berrya* is usually cited as 'Maza.' His full name is Manuel Gómez de la Maza y Jiménez. We have followed the suggested citation as listed in the Draft Index of Author Abbreviations.







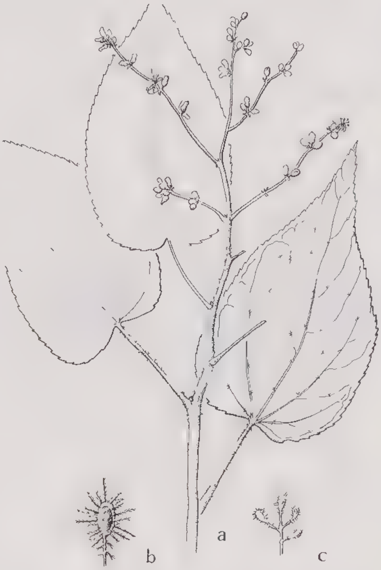


FIGURE 77 (upper left). *Berrya cubensis*: a, flowering branch, × 0.3; b, fruit, × 0.3; c, seed, × 0.3. FIGURE 78 (upper right). *Corchorus siliquosus*, × 0.3. FIGURE 79 (lower left). *Triumfetta semitriloba*: a, fruiting branch, × 0.3; b, fruit, × 0.3. FIGURE 80 (lower right). *Heliocarpus donnellsmithii*: a, flowering branch, × 0.3; b, single fruit, × 1.3; c, fruit cluster, × 0.7.

CORCHORUS L.

Corchorus L., Sp. Pl. **1**: 529. 1753.

Annual or perennial herbs or subshrubs, with pubescence of simple or stellate hairs. Leaves simple, crenate to serrate; stipules linear-filiform to subulate, tardily deciduous. Inflorescences leaf-opposed, short-pedunculate, short-pedicellate, few-flowered cymes or the flowers solitary. Flowers small, perfect, yellow; sepals 5, free, deciduous; petals 5, imbricate; stamens numerous, occasionally inserted on a short gonophore, filaments free or short-connate; ovary sessile, 2-to 4-locular, ovules numerous in each locule, style simple, stigma large, discoid, irregularly crenulate or lobulate. Fruits capsular, loculicidal, cylindrical, elongate and silique-like or ellipsoid, separating into 2, 3, or 4 valves; seeds numerous, irregularly 3- or 4-angled, truncate.

LECTOTYPE: *Corchorus olitorius* L. (see N. L. Britton & C. Millsp., Bahama Fl. 262. 1920).

A pantropical genus of 30 to 40 species centered in Africa and Australia. According to Martinez (unpublished master's thesis, University of Kentucky), there are 10 species in tropical America, six of which are apparently native. Eight of these species are represented in the Lesser Antilles.

CULTIVATED SPECIES

Two Asiatic species, *Corchorus olitorius* L. and *Corchorus capsularis* L., are cultivated (and occasionally naturalized) in the American tropics for their fibers known as jute. *C. olitorius* (lectotype: cultivated spec. in herb. Hort. Cliff. (BM); see H. Wild, Fl. Zambesiaca **2**(1): 82. 1963) has been reported in the Lesser Antilles from St. Eustatius, Guadeloupe, Dominica, and the Grenadines, but no actual collections have been seen. It is vegetatively similar to *C. aestuans* in that the two basal teeth of the leaf blades are commonly prolonged into setaceous hairs. It differs reproductively, however, in the 5-locular fruits that are 3-7 cm long, conspicuously transversely partitioned within, and without the dorsal winged ridges on the valves (vs. 3-locular fruits that are 1-2 cm long, obscurely partitioned within, and with 2 winged ridges on each valve).

C. capsularis is less common in the Americas, but a collection from Martinique is known (*Stehlé 5352* at US, n.v.). It is easily distinguished by the globose fruits separating into 5 or more rugose valves.

INTRODUCED OR DOUBTFUL SPECIES

Corchorus trilocularis L., originally described on the basis of a Forsskal specimen from Arabia and currently native from Africa through the Middle East to India, has been reported from Antigua (*Box 1143* at US). This represents either an introduction of this species or the Box specimen is a misidentification of a similar, but more common American species, *C. hirtus.*

Corchorus tridens, also an Old World species from Africa, Asia, and Australia, is represented in the Lesser Antilles by a collection from Barbados

(*Eggers 7368* at A!). It is similar to *C. aestuans* in possessing the setaceous hairs projecting from the basal teeth of the leaf blades and the trilocular fruits, but is readily distinguished by the longer fruits that lack the dorsal winged ridges. The epithet undoubtedly refers to the presence of three bifid horns at the apex of the fruits.

KEY TO THE SPECIES

1. Fruit valves each with 2 dorsal winged ridges; leaf blades with the basal pair of serrations commonly prolonged into a hairlike bristle. . . . . *C. aestuans*
1. Fruit valves lacking winged ridges, naked; leaf blades always lacking the hairlike bristles on the basal pair of serrations.
    2. Plants densely stellate-pubescent to tomentose throughout; capsules oblong-ellipsoid, < 1.5 cm long, 4-locular. . . . . *C. hirsutus*
    2. Plants hirsute to glabrate, of simple hairs only; capsules linear, siliquelike, > 3 cm long, 2- or 3-locular.
        3. Capsules apically blunt, with 4 minute toothlike horns; calyx glabrous; stipules and leaves essentially glabrous. . . . . *C. siliquosus*
        3. Capsules apically caudate-acuminate, with 2 or 3 beaks evident on separation of the valves; calyx hirsute; stipules and leaves sparsely hirsute to glabrate. . . . . *C. hirtus*

Corchorus aestuans L., Syst. Nat. ed. 10, **2:** 1079. 1759.

Type: P. Browne, Civ. Nat. Hist. Jamaica 232, *t. 25, fig. 1.* 1756.
Syn.: *Corchorus acutangulus* Lam., Encycl. **2:** 104. 1786. (Type: E. Indies, *Sonnerat s.n.* (holotype, P-LA, photo, A!; IDC 6207. 95: II. 6, photo!).)

Annual herb, erect or decumbent, subwoody; stems puberulous to pilose-hirsute, of simple hairs. Leaves with petioles 0.4-2.1(-2.8) cm long, pilose to densely pilose; blades lanceolate-ovate to more commonly ovate to broadly ovate-suborbiculate, 1-7.2 × 1.1-3.8 cm, base rounded to obtuse to subcordate, apex acute to acuminate, margin crenate-serrate, ciliate, the lowermost serration on one or both sides often prolonged into a hairlike bristle (setaceous), sparsely pilose-hirsute, ± glabrate above; stipules subulate, 2.5-10 mm long, sparsely pilose-hirsute. Inflorescences 1- to 3-flowered, nearly sessile. Flowers with sepals oblong, 3-4 mm long, apically cucullate, glabrous; petals obovate, ± as long as sepals; gonophore evident, apically expanded into a collar that surrounds base of stamens; filaments free; ovary narrowly oblong, puberulent. Fruits narrowly oblong, 0.8-2 cm long, trilocular, each valve with two longitudinal winged ridges that merge and project beyond apex into a single bifid, recurved beak or horn, glabrous; seeds 0.5-1.5 mm long.

GENERAL DISTRIBUTION: Pantropical; in the New World most abundant in the West Indies.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, St. Eustatius, St. Kitts!, Montserrat!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados.

COMMON NAME: Balai-savane.

NOTE: Every description of this species that I have encountered has indicated the inflorescences as being axillary. I have not found this to be true; they are most assuredly leaf-opposed!.

Corchorus hirsutus L., Sp. Pl. **1:** 530. 1753.

Type: Not designated.

Small shrub, to 1(-2) m tall, erect and commonly multi-branched, densely stellate-pubescent to tomentose throughout. Leaves with petioles 2-7 mm long; blades ovate to oblong-ovate or oblong-lanceolate, 1.2-3.4 × 0.9-1.9 cm, base rounded to obtuse, apex obtuse to acute, margin crenate to crenate-serrate; stipules linear-filiform to subulate, 1.5-3 mm long. Inflorescences 2- to 8-flowered umbelliform cymes. Flowers with sepals oblong to ovate, 5-7 mm long, densely stellate-pubescent to tomentose without, glabrous within; petals obovate, as long as or slightly longer than sepals, glabrous; gonophore short, but evident, especially in young fruit; filaments free; ovary ovoid to oblong-ovoid, densely stellate-pubescent. Fruits oblong, to 1.4 cm long and 8 mm wide, 4-locular, densely tomentose of stellate hairs and hairlike appendages with stellate pubescence; seeds 1-2 mm long.

GENERAL DISTRIBUTION: Principally the West Indies and northeast Africa, but also reported from continental tropical America from Mexico to South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, St. Eustatius, Guadeloupe(?).

Corchorus hirtus L., Sp. Pl. ed. 2, **1:** 747. 1762.

Type: ''America meridionali,'' Plum., Nov. Pl. Amer. 7, *t. 103, fig. 2.* 1703.
Syn.: *Corchorus orinocensis* Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 262 (ed. folio), 337 (ed. quarto). 1823. (Type: Venezuela, Angostura, *Humboldt & Bonpland s.n.* (holotype, P; IDC 6209. 134: I. 2, photo!).)

Herb, erect or occasionally spreading, to 60 cm or more in height, ± woody towards base, sparsely to densely hirsute throughout, and usually with a more dense sublayer of hirsute-arachnoid hairs arranged in a longitudinal row along the stem. Leaves with petioles 3-15 mm long; blades ovate to ovate-lanceolate to lanceolate, 1.3-7.3 × 0.6-2.8 cm, base acute to rounded, apex acute to acuminate, margin crenate-serrate to serrate, sparsely hirsute to glabrate; stipules linear-lanceolate, 3-7 cm long, ciliate-hirsute. Inflorescences 1- or 2-flowered, hirsute to glabrate. Flowers with sepals linear-lanceolate, 5-7 mm long, sparsely hirsute without, glabrous within; petals spatulate, slightly shorter than sepals, to 6 mm long, glabrous; gonophore absent; filaments free or connate to ca. 1/3 their length; ovary narrowly oblong, pubescent to densely hirsute. Fruits linear, siliquelike, 2.8-5.6 cm long, 2- or 3-locular, caudate-acuminate, hirsute to densely hirsute to glabrate; seeds ca. 1 mm long.

GENERAL DISTRIBUTION: Mexico, Central America, the West Indies, and South America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts, Antigua!, Guadeloupe, Dominica(?), Martinique!, St. Vincent!, the Grenadines!, Barbados.

COMMON NAMES: Petit balai, balai velu, petit balai velu.

NOTE: Most modern treatments of *Corchorus* consider *C. hirtus* and *C. orinocensis* as distinct species on the basis of respective differences in pubescence (hirsute vs. glabrate), locule number (2 vs. 3), and leaf shape (ovate vs. lanceolate). I have examined material throughout the range of these taxa, and I cannot consistently distinguish between them using any character, including those just listed. The variability present is either continuous over the range of the species (e.g., pubescence and leaf shape) or in the case of locule number, a single specimen may show both states. Although the morphological extremes are often quite distinct, there are numerous intermediates that argue against the recognition of the extremes as distinct species.

Corchorus siliquosus L., Sp. Pl. **1:** 529. 1753. FIGURE 78.

Type: Not designated.

Suffrutescent herb to 1(-2) m tall; stems glabrous except for one or two rows of simple hairs, densely puberulous. Leaves with petioles 4-22 mm long, adaxially densely puberulous; blades ovate to narrowly ovate, 0.7-5.2 × 0.4-2.4 cm, base rounded, apex acute to short-acuminate, margin serrate, glabrous or nearly so; stipules linear-lanceolate, 1.5-6 mm long, glabrous. Inflorescences 1- to 3-flowered. Flowers with sepals oblong-lanceolate, 5-7 mm long, glabrous; petals obovate, 4-5.5 mm long, glabrous; gonophore absent; filaments free; ovary narrowly oblong, puberulous. Fruits linear, siliquelike, 3.6-6.4 cm long, bilocular, apically blunt but with four minute toothlike projections, inconspicuously puberulous but with a slightly longer row of hairs along suture line; seeds to 1.5 mm long.

GENERAL DISTRIBUTION: Southern Florida, Mexico, Central America, the West Indies, and northern South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda, Antigua!, Guadeloupe!, Dominica, Martinique!, St. Lucia!, St. Vincent!, the Grenadines, Grenada!, Barbados.

COMMON NAMES: Petit balai, balai-savane.

NOTE: Like *C. aestuans*, many descriptions of this species indicate that the flowers are borne in an axillary position. I have not found this to be the case; they are opposite the leaves.

HELIOCARPUS L.

Heliocarpus L., Sp. Pl. **1:** 448. 1753.

Shrubs or small trees; young branches pubescent, the hairs primarily stellate, but also simple, older branches glabrate. Leaves simple or 3-lobed, serrate, palmately veined; stipules present, early-deciduous. Inflorescences gynodioecious, terminal, large, cymose paniculiform thyrses, the ultimate branchlets bearing clustered 3-flowered cymes. Flowers perfect or pistillate, 4-merous; sepals stellate pubescent without, glabrate within; petals present in perfect flowers, absent in pistillate ones, valvate, shorter and narrower than sepals; stamens 12 to 20 in perfect flowers, absent from pistillate ones, borne on an enlarged, but very short gonophore, filaments free; ovary borne on a gynophore, ellipsoid to suborbicular, laterally compressed, ciliate along margin, short pubescent on the faces, bilocular, ovules 2 per locule, style filiform, bifid. Fruits capsular but indehiscent, dry, borne on an accrescent, bristly gynophore, 2-celled, 1- to 2-seeded, laterally compressed, margins bearing 2 rows of plumose bristles, faces pubescent to hirsute.

TYPE: *Heliocarpus americanus* L. (as 'americana').

A neotropical genus of ca. 10 species, occurring naturally from northwestern Mexico through Central America to Argentina in South America. The genus was apparently introduced into the Lesser Antilles in the mid-1800's at the St. Pierre Botanic Garden on the island of Martinique. The single species, *H. donnellsmithii*, perhaps still cultivated for the fibers extracted from the bark, is naturalized to some extent in the area surrounding the site of its introduction.

Heliocarpus donnellsmithii Rose ex J. D. Smith, Bot. Gaz. (Crawfordsville) **31:** 110, *pl. 1.* 1901. FIGURE 80.

Type: Guatemala, Alta Verapaz Dept., near Arenal, April 1889, *J. D. Smith 1722* (holotype, US).

Shrubs or small trees to 8 m tall; young branches yellow-brown pubescent, with very dense stellate hairs and simple hirsute hairs overtopping and less numerous. Leaves with petioles 1.5-8.1 cm long, pubescent, glabrate; blades ovate to broadly ovate, ca. 10.5-15.9 × 5.4-12 cm, base rounded to obtuse or very slightly subcordate, apex acuminate, with few stellate hairs above, or glabrate, stellate pubescent with simple hirsute hairs along veins beneath. Inflorescences multi-branched, spreading, axes densely pubescent, primarily of stellate hairs, but also of simple hairs. Pedicels 2-3.5 mm long, densely pubescent of stellate hairs only. Perfect flowers with sepals lanceolate, 5-6.5 mm long, ca. 1 mm wide, yellowish within; petals linear to linear-spatulate, ca. 4 mm long, glabrous; stamens with filaments 4-5 mm long, anthers 0.75-1 mm long; ovary ca. 0.5-0.75 mm long, borne on a shorter gynophore. Pistillate flowers with sepals 2-3 mm long; ovary ca. 1 mm long. Fruits ellipsoid, 4 × 2-3 mm, the accrescent gynophore 4-5 mm long, plumose bristles 3.5-5 mm long, continuing from margin of fruit body along gynophore; seeds obliquely ovoid, ca. 2 mm long, with distinct submedial groove.

GENERAL DISTRIBUTION: Southern Mexico and Central America.

DISTRIBUTION IN LESSER ANTILLES: Martinique!.

NOTES: Superficially very similar to *H. popayanensis* Kunth, but that species possesses more densely pubescent inflorescence axes, longer accrescent gynophores (5-10 mm long), generally longer bristles, to 7 mm long, and a much stronger tendency toward 3-lobed leaves. This species has also been reported from Martinique as being cultivated in the St. Pierre Botanic Garden, but this is probably a misidentification of *H. donnellsmithii.*

TRIUMFETTA L.

Triumfetta L., Sp. Pl. **1:** 444. 1753.

Shrubs, small trees or subwoody herbs, with pubescence primarily of stellate hairs, but also occasionally of simple hairs. Leaves simple or palmately 3- to 5-lobed, irregularly serrate; stipules linear-lanceolate to lanceolate, ± persistent. Inflorescences cymose, commonly umbelliform, generally composed of 2 or 3 aggregated cymules, opposite and/or lateral to the leaves or bracts, several inflorescences of successive nodes often appearing en masse as axillary racemiform panicles (thyrses) due to reduction of associated leaves. Flowers perfect; sepals 5, free, each with a subapical appendage, ± pubescent without, glabrous within; petals 5 or absent, imbricate, generally shorter than sepals, glabrous except for base with a transverse band of hairs and ciliate margin; gonophore short or absent, bearing 5 antipetalous glands, and usually with an apical, ciliate disk (= urceolus) that surrounds base of stamens; stamens numerous to 10, rarely fewer, filaments free; ovary sessile, 2- to 5-locular, covered by numerous short, undeveloped prickles that are terminated by an uncinate hyaline hair, ovules 2 per locule, pendulous, style filiform, stigma entire or briefly 2- to 5-parted. Fruits indehiscent and nutlike, or dehiscent and capsular or schizocarpic, 2- to 5-locular, and 1- or 2-seeded, covered by numerous subulate, rigid, glabrous to retrorsely hispidulose prickles, each terminated by an uncinate hyaline hair; seeds ovoid to pyriform.

TYPE: *Triumfetta lappula* L.

A pantropical genus of 100 to 150 species (probably an exaggeration), with major centers of distribution in the Americas and Africa. For additional information on the American species see K. K. Lay, Ann. Missouri Bot. Gard. **37:** 315-395. 1950.

KEY TO THE SPECIES

1. Prickles of fruit glabrous or glabrescent.
    2. Sepals cucullate, 5-7 mm long, the subapical appendages ca. 0.5 mm long; fruit bodies 3-4 mm broad, densely tomentose; stamens 10 to 15; pubescence of stellate hairs only . . . . *T. rhomboidea*
    2. Sepals flattened, 10-15 mm long, the subapical appendages 1-1.5 mm long; fruit bodies 5-6 mm broad, glabrous; stamens 25 to 35; pubescence of stellate and simple hairs . . . . *T. grandiflora*
1. Prickles of fruit retrorsely hispidulose.

3. Petals absent; gonophore and associated glands absent; urceolus absent .... *T. lappula*
3. Petals present; gonophore and associated glands present; urceolus present.
    4. Leaves and stems with stellate and simple hairs; fruit body pubescent; sepalar appendages > 1 mm long.......................... *T. bogotensis*
    4. Leaves and stems with stellate hairs only; fruit body glabrous or minutely puberulent; sepalar appendages < 1 mm long.......... *T. semitriloba*

Triumfetta bogotensis DC., Prodr. **1:** 506. 1824, nom. nov. for *T. pilosa* Kunth.

Type: Colombia, Santa Fe de Bogota, *Humboldt & Bonpland s.n.* (holotype, P; IDC 6209. 134: II. 3, photo!).

Syn.: *Triumfetta pilosa* Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 267 (ed. folio), 343 (ed. quarto). 1823, non Roth (1821).

Triumfetta vincentina Urban, Symb. Antill. **5:** 414. 1908. (Type: St. Vincent, *Smith & Smith 1057* (holotype, B-presumably destroyed; isotypes GH!, K, photo at A!).)

Shrub, 1-2 m tall; young stems pubescent, of short-stellate hairs overtopped by less numerous long-stellate and simple hairs, glabrescent. Leaves with petioles 0.9-6.9 cm long, pubescent as for the stems; blades simple or often 3-lobed toward apex, oblong-elliptic to more commonly ovate or broadly ovate, 5.4-12.5 × 3.4-8.1 cm, base rounded to subcordate, apex acuminate, puberulous to hirsute above, lightly pubescent beneath, of short-stellate and scattered simple hairs; stipules 5-10 mm long, ciliate-hirsute. Inflorescences with peduncles 4-8 mm long, axes pubescent as for the stems. Flowers with pedicels 1-2 mm long; sepals oblong-lanceolate, to 16 mm long, long- and short-stellate pubescent, subapical appendages 1-2 mm long; petals obovate, to 13 mm long, 4-5 mm wide; gonophore 0.5-0.75 mm long, glands suborbiculate, urceolus undulate, ca. 0.5-1 mm high; stamens 25 to 30, filaments 7-10 mm long, anthers ca. 1 mm long; ovary suborbicular, ca. 1.25 mm long, style ca. 8 mm long, stigma entire. Fruits globose, body 3-4 × 3-4 mm, stellate-pubescent, ± glabrate, (2-)3-locular, each cell (1-)2-seeded, prickles 2-3.5 mm long, retrorsely hispidulose, especially near base; seeds ovoid, 2.5-3 mm long.

GENERAL DISTRIBUTION: Mexico, Central America, the West Indies, and South America.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!, Grenada!.

NOTE: Apparently a rare species in the Lesser Antilles, but an abundant weed in continental tropical America.

Triumfetta grandiflora M. Vahl, Eclog. Amer. **2:** 34. 1798.

Type: Montserrat, *Ryan s.n.* (holotype, C, photo at GH!, A!; IDC 2201. 76: I. 5, 7, photo!).

Shrub or small tree, to 4 m tall; young stems pubescent to densely pubescent-tomentose, of long-stellate and simple hairs, glabrate. Leaves with petioles 1.1-8.4 cm long, long stellate-pubescent, often densely so near the petiole-blade junction; blades simple or obscurely 3-lobed, ovate to broadly ovate, less often narrowly ovate-elliptic (the latter usually associated with the inflorescences), 4.7-14.5 × 1.2-8.7 cm, base rounded to cuneate, apex acuminate to long-acuminate, serrations commonly glandular, sparsely pubescent above, of long-stellate and simple hairs, and with short-stellate hairs ± confined to major veins, very sparsely pubescent to glabrate beneath, of stellate hairs; stipules 5-8 mm long, ciliate. Inflorescences with peduncles 5-10 mm long, axes pubescent to densely pubescent-tomentose, primarily of long-stellate hairs. Flowers with pedicels 5-9 mm long; sepals oblong-lanceolate, 10-15 mm long, sparsely hirsute to glabrate, subapical appendages 1-1.5 mm long; petals obovate-spatulate, to 13 mm long, 4-5 mm wide; gonophore ca. 0.5 mm long, glands suborbiculate, urceolus ca. 0.5-0.75 mm high, undulate; stamens 25 to 35, filaments 7.5-12 mm long, anthers 1-1.25 mm long; ovary orbicular, 1.5-2 mm long, style ca. 9 mm long, stigma briefly 3- to 5-parted. Fruits subglobose to globose, body 4-6 × 4-6 mm, glabrous, 3- to 5-locular, each cell 2-seeded, prickles 3.5-6 mm long, glabrescent; seeds ovoid, 1.5-2 mm long.

General distribution: Mexico, Central America, the West Indies, and South America.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique, St. Vincent!.

Common name: Grand cousin-bois.

Triumfetta lappula L., Sp. Pl. **1:** 444. 1753.

Type: Not designated.

Shrub, to ca. 2 m tall; stems densely stellate-pubescent to tomentose, the hairs variable in size, ferrugineous. Leaves with petioles 0.7-10.6 cm long, densely stellate-pubescent to tomentose; blades simple to more commonly 3- to 5-lobed, the middle lobe often pandurate, broadly ovate to suborbiculate, 3.5-15.1 × 2.8-14 cm, base truncate to shallowly cordate, apex acute to rounded, of middle lobe usually acuminate, serrations commonly glandular, stellate-pubescent above, densely stellate-pubescent to tomentose beneath; stipules 3.5-5 mm long, ciliate-hirsute, of long-stellate hairs. Inflorescences with peduncles 1-3 mm long, axes stellate-pubescent. Flowers with pedicels 1-3 mm long; sepals narrowly oblong, 3.5-5 mm long, stellate-pubescent, subapical appendages very short, rarely to 0.5 mm long; petals absent; gonophore, glands, and urceolus absent; stamens 10 to 15, rarely fewer, filaments 2.5-4 mm long, anthers ca. 0.5 mm long; ovary ovoid, ca. 1 mm long, style to 3 mm long, stigma entire or very briefly bifid. Fruits broadly ellipsoid to suborbicular, body 2-3 × 1.5-2.5 mm, stellate-pubescent, 2- or 3-locular, each cell 1-seeded, prickles 1.5-3 mm long, retrorsely hispidulose; seeds ovoid to pyriform, ca. 2 mm long.

General distribution: Mexico, Central America, the West Indies, and South America.

Distribution in Lesser Antilles: St. Barts(?), Antigua(?), Montserrat!, Guadeloupe, Martinique, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

Common names: Tête à nègre, mahot, mahot-cousin, grand cousin, hérisson blanc, cousin blanc.

Notes: In this species the vegetative leaves and the lowest leaves associated with inflorescences tend to be large and lobed. As one proceeds up the stem the floral leaves gradually change, becoming smaller, obscurely lobed to eventually simple, and lanceolate-ovate in shape. This makes it appear as though the 'inflorescences' are axillary or terminal (which is how they are often described), and racemiform. In actuality this 'inflorescence' is a compound structure representing several successive nodes with 2 or 3 inflorescences at each node. At some point, perhaps where the leaves are quite bractlike, this structure could be called a thyrse. In Central American material that I have observed, this change from vegetative leaf to bract is much more abrupt such that the thyrses truly are axillary or terminal.

Triumfetta rhomboidea Jacq., Enum. Syst. Pl. 22. 1760; Select. Stirp. Amer. Hist. 147, *t. 90.* 1763.

Type: Martinique, *Jacquin s.n.*, material doubtfully preserved but a specimen or fragment may exist at BM, W, or BP.

Syn.: *Bartramia indica* L., Sp. Pl. **1:** 389. 1753, non *Triumfetta indica* Lam. (1791). (Type: Ceylon, specimen in Herb. Hermann, BM.)

Triumfetta bartramia L., Syst. Nat. ed. 10, **2:** 1044. 1759, nom. illegit. for *Bartramia indica* L.

Shrub, 1-2 m tall; young stems densely stellate-pubescent to tomentose, older branches glabrate. Leaves with petioles 0.9-4.8 cm long, progressively even shorter toward plant apex, densely pubescent to tomentose of short-stellate hairs; blades simple or 3-lobed, broadly ovate or rhombic-ovate, to narrowly lanceolate-elliptic toward plant apex, 1.9-7.7 × 0.7-5.2 cm, base rounded to acute, apex acuminate, serrations mostly nonglandular except those near base, both surfaces sparsely to densely pubescent, of short-stellate hairs; stipules 3-5 mm long, ciliate and sparsely hirsute, of simple hairs. Inflorescences with peduncles 2-3.5 mm long, axes stellate-pubescent to tomentose. Flowers with pedicels 1-2.5 mm long; sepals narrowly oblong-lanceolate, 3-6 mm long, apical portion deeply cucullate, subapical appendages short, to ca. 0.5 mm long, sparsely stellate-pubescent or glabrate; petals obovate to oblanceolate, to 5 mm long, 1-2 mm wide; gonophore very short, rarely to 0.5 mm long; glands orbicular, urceolus ca. 0.25 mm high, ± undulate, densely ciliate; stamens 15, filaments 4-5 mm long, anthers ca. 0.5 mm long; ovary orbicular, ca. 0.75 mm long, style 5-6 mm long, stigma entire to briefly 3-parted. Fruits globose or subglobose, body 3-4 × 2.5-3.5 mm, densely stellate-tomentose, 3-locular, each cell 1-seeded, prickles 1-1.5 mm long, glabrous or glabrescent; seeds pyriform, 2-2.5 mm long.

General distribution: Pantropical; in the New World most abundant in the West Indies and South America; infrequent in Central America.

Distribution in Lesser Antilles: Antigua!, Saba, St. Eustatius, Guadeloupe, Dominica!, Martinique, St. Vincent!, Grenada.

Common name: Mahot-cousin.

Note: Linnaeus originally described this species as *Bartramia indica.* He later transferred it to the genus *Triumfetta*, but failed to make the correct combination of "*Triumfetta indica* (L.) L.," instead calling it *T. bartramia.* Unfortunately, the combination cannot now be made as the epithet in *Triumfetta* is occupied by *T. indica* Lam. Therefore, *Triumfetta rhomboidea* Jacq. is the earliest available legitimate name for this species.

Triumfetta semitriloba Jacq., Enum. Syst. Pl. 22. 1760; Select. Stirp. Amer. Hist. 146. 1763. Figure 79.

Type: According to Lay (1950), the type specimen (*Banks Herb. s.n.*) exists at S. This is perhaps a Jacquin specimen, but we have not seen it.

Syn.: *Triumfetta hirta* M. Vahl, Symb. Bot. **3:** 63. 1794. (Type: "St. Martha" (probably St. Martin), *Ryan s.n.* (holotype, C; IDC 2201. 76: II. 2, photo!).)

Triumfetta ovata DC., Prodr. **1:** 507. 1824. (Type: Antilles, *collector unknown*, (syntypes?, G-DC; IDC 2562. 214: III. 5, 6, photo!).)

Triumfetta tiliifolia M. Vahl ex DC., Pl. Rar. Jard. Genève 65. 1826. (Type: Antilles, *West s.n.* (according to de Candolle at C, but no specimen on IDC microfiche; Lay indicates that the type is at G-DEL).)

Heliocarpus hirta (M. Vahl) R. O. Williams & Sandw., Fl. Trinidad **1:** 111. 1929.

Shrub, 0.5-2 m tall; stems densely stellate-pubescent to tomentose, ± glabrescent with age. Leaves with petioles 0.8-9.5 cm long, progressively even shorter toward plant apex, stellate-pubescent to densely tomentose; blades quite variable, even on same plant, simple or 3-lobed, ovate or rhombic-ovate, to oblong-lanceolate or oblong-elliptic near plant apex, (1.3-)3.3-15.4 × 0.7-11 cm, base cuneate to rounded, to less often obtuse or subcordate, apex acute to acuminate, serrations often glandular, especially those near base, both surfaces stellate-pubescent to tomentose; stipules 4-6 mm long, ciliate-hirsute, of stellate hairs. Inflorescences with peduncles 1-4 mm long, axes stellate-pubescent. Flowers with pedicels 2-4 mm long; sepals oblong-lanceolate, 4-7 mm long, subapical appendages 0.5-1 mm long, stellate-pubescent or sparsely so; petals obovate to oblanceolate, slightly shorter than sepals, 1-2 mm wide; gonophore very short, ca. 0.25 mm long, glands orbicular, urceolus ca. 0.25 mm high, ± undulate; stamens 10 to 20, filaments 4-5 mm long, anthers 0.5-1 mm long; ovary ovoid to subglobose, ca. 1 mm long, style 5-6 mm long, stigma entire to obscurely 3-parted. Fruits ovoid to subglobose, body 3-5 × 2.5-4 mm, sparsely stellate-pubescent but soon glabrate, 2- to 3-locular, 1- or 2-seeded, prickles 2-4 mm long, retrorsely hispidulose; seeds ovoid to pyriform, 2-3 mm long.

General distribution: Mainly in the New World from Florida, Mexico, Central America, the West Indies, and South America, but also found in Africa.

Distribution in Lesser Antilles: St. Martin, St. Barts, Antigua!, St.

Eustatius!, Montserrat!, Guadeloupe, Dominica!, Martinique, St. Lucia!, St. Vincent!, the Grenadines, Grenada, Barbados.

COMMON NAMES: Cousin-petit, petit mahot-cousin, mahot-cousin rouge, tête à nègre, nedyah, black bush.

MALVACEAE

by Paul A. Fryxell

MALVACEAE A. L. Juss., Gen. Pl. 271. 1789.

Herbs, shrubs, or trees, often stellate-pubescent; roots fibrous or woody, sometimes fleshy in perennial herbs; stems erect or procumbent. Leaves alternate, ovate to lanceolate, sometimes lobed or dissected, with hairs stellate, simple, sometimes prickly or glandular, or rarely lepidote; stipulate. Inflorescences racemes or panicles, sometimes spikes or scorpioid cymes, rarely umbels or heads, or flowers solitary or fasciculate in axils of leaves. Flowers with calyx gamosepalous, truncate, 5-lobed or 5-parted; petals 5, distinct, usually clawed; androecium monadelphous, anthers reniform, numerous (rarely reduced to 5); ovary superior, 3- to 40-carpellate, styles 1 to 40, stigmas truncate, capitate, or decurrent. Fruits schizocarpic or capsular, sometimes a berry; seeds reniform or turbinate, pubescent or glabrous.

TYPE: *Malva* L.

A principally tropical and subtropical family (but with a few temperate genera) including more than 100 genera and perhaps 2000 species. For further information see T. H. Kearney, Amer. Midl. Naturalist **46:** 93-151. 1951, and J. Hutchinson, The Genera of Flowering Plants **2:** 536-567. 1967.

CULTIVATED OR QUESTIONABLE TAXA

Anoda acerifolia Cav. (Anales Ci. Nat. **6:** 336. 1803) was reported by Gooding et al. (1965) as *Anoda acerifolia* DC. (Prodr. **1:** 459. 1824, based on the illegitimate name *Sida acerifolia* Zuccagni *in* Roemer, Collectanea 148. 1809, non (Cav.) Medikus, 1787) on the basis of a MacIntosh specimen in the Barbados herbarium (n.v.). Fryxell overlooked the Cavanilles name when publishing the new combination *Anoda zuccagnii* (Sprengel) Fryx. (Aliso **11:** 519, 520. 1987). (See fig. 84.)

Goethea strictiflora Hook. was reported in cultivation by Duss (1897), who is cited by Fournet (1978), but no specimens have been seen.

Malva parviflora L. (on the basis of *Belanger 575*) was probably a weed in the St. Pierre Botanic Garden, Martinique.

KEY TO THE GENERA

1. Fruits capsular; staminal column surmounted by 5 apical teeth; carpels 3 to 5; involucel present.
    2. Stigmas decurrent; carpels 3 to 5; gossypol glands present in petals, calyx, or herbage; involucel trimerous (tribe Gossypieae).
        3. Bractlets of involucel cordate-ovate, laciniate, enclosing bud; seeds producing cotton fibers . . . . *Gossypium*
        3. Bractlets of involucel subulate or ligulate, not enclosing bud; seeds glabrous or short-pubescent, not cottony . . . . *Thespesia*
    2. Stigmas capitate; carpels 5; gossypol glands absent; bractlets of involucel 4 to usually 8 or more (tribe Hibisceae).
        4. Calyx asymmetrical, spathaceous, splitting laterally at anthesis, deciduous in fruit; foliar nectaries absent . . . . *Abelmoschus*
        4. Calyx symmetrical, pentamerous, persistent; foliar nectaries sometimes present.
            5. Leaves large, suborbicular to weakly pentagonal, somewhat broader than long; fruits 4-5 cm long, prominently 5-winged, stipitate, obovoid, stellate-pubescent, long-pedicellate; wet forest trees . . . . *Wercklea*
            5. Leaves simple and ovate to palmately lobed, usually longer than broad; fruits smaller and without the above character combination.
                6. Fruits depressed, 5-winged, hispid; leaves palmately lobed; corolla yellow with deep red center . . . . *Fioria*
                6. Fruits ovoid, longer than broad, not winged, variously pubescent; leaves simple or palmately lobed; corolla sometimes yellow with deep red center, but often other colors or without dark center . . . . *Hibiscus*
1. Fruits schizocarpic (rarely pseudocapsular, but then involucel absent); staminal column with 5 apical teeth or filamentiferous at apex; carpels 3 to many, often more than 5; involucel present or absent.
    7. Staminal column surmounted by 5 apical teeth; mericarps uniformly 5, dry or fleshy, 1-seeded; styles and stigmas 10 (twice as many as mericarps); foliar nectaries present (in *Urena*) or absent; involucel usually present, 5- to 11-parted (tribe Malvaviseeae).
        8. Leaves with prominent foliar nectaries; bractlets of involucel 5, alternate with calyx lobes; mericarps with numerous glochidiate spines; corolla lavender . . . . *Urena*
        8. Leaves lacking nectaries; bractlets of involucel usually more than 5, sometimes absent; mericarps with 3 retrorsely barbed spines or spines lacking; corolla of various colors.
            9. Flowers lacking individual involucel but aggregated into capituliform inflorescences and subtended by specialized floral bracts; mericarps dry, smooth . . . . *Malachra*
            9. Flowers solitary, in umbellate, racemose, or paniculate inflorescences, involucellate but not subtended by specialized floral bracts; mericarps fleshy or dry, 3-spined or smooth.
                10. Petals yellow or white, not auriculate; mericarps smooth, reticulate, or 3-spined and dry . . . . *Pavonia*
                10. Petals red, basally auriculate; mericarps fleshy, red . . . . *Malvaviscus*

7. Staminal column antheriferous at summit; mericarps 3 to many, dry, 1- to 5-seeded; styles and stigmas as many as mericarps; foliar nectaries absent; involucel present or absent, if present usually 2- or 3-parted (except *Alcea*) (tribe Malveae).

11. Involucel present; mericarps 10 or more, 1-seeded, horseshoe-shaped.

12. Bractlets of involucel 6 or more, partially connate; flowers showy (sometimes double), of various colors, in spiciform inflorescences (introduced garden plants) .... *Alcea*

12. Bractlets of involucel 2 or 3, filiform; flowers yellow, relatively inconspicuous, variously disposed; climax leaves ovate or lanceolate .... *Malvastrum*

11. Involucel absent; mericarps 3 to many, 1- to 5-seeded, not horseshoe-shaped.

13. Mericarps 3- to 5-seeded.

14. Fruits globose, inflated, hispid, pendent; mericarps 12 to 15, reniform, papery, dehiscent to the base; plants decumbent to ascending, often scandent .... *Herissantia*

14. Fruits not inflated, variously pubescent, erect; mericarps 3 to 30, usually oblong and apically acute or acuminate, coriaceous, often only partially dehiscent; plants usually erect.

15. Mericarps 3 to 5, divided into 2 cells by medial constriction, the lower cell indehiscent, 1-seeded, the upper cell dehiscent, 2-seeded; upper seeds collateral in position .... *Wissadula*

15. Mericarps 5 to 30, undivided; seeds 3 to 5, all serially superposed .... *Abutilon*

13. Mericarps 1-seeded.

16. Calyx 2-5 mm long, ecostulate; mericarps essentially indehiscent, fragile-walled.

17. Mericarps 5 to 7, with small internal endoglossum; flowers in terminal panicles .... *Sida pyramidata*

17. Mericarps 8 to 10, without endo-glossum; flowers 1 to several in axillary fascicles .... *Sidastrum*

16. Calyx usually more than 5 mm long, often costulate or angular; mericarps more or less dehiscent, often indurate.

18. Calyx basally 10-costate; mericarps indurate, more or less reticulate laterally, often apically 2-spined .... *Sida*

18. Calyx obscurely 5-nerved; mericarps essentially unornamented.

19. Mericarps 5, more or less coherent as pseudocapsule (septicidal dehiscence suppressed), lacking an endoglossum .... *Bastardia*

19. Mericarps 8 to 30, free at maturity, with pectinate endoglossum .... *Gaya*

ABELMOSCHUS Medikus

Abelmoschus Medikus, Malvenfam. 45. 1787.

Robust herbs or shrubs, annual or perennial, tomentose or hispid. Leaves large, long-petiolate, palmately lobed, crenate or dentate, lacking foliar nectaries. Flowers axillary, solitary; involucel of 4 to 16 bractlets, usually caducous; calyx spathaceous, splitting asymmetrically at anthesis and falling with corolla; petals large, yellow with dark spot at base; style solitary with sessile stigmas. Capsules elongate, 5-carpellate, pubescent or hispid; seeds numerous, reniform, pubescent or squamose.

LECTOTYPE: *Abelmoschus moschatus* Medikus, based on *Hibiscus abelmoschus* L; see N. L. Britton & C. F. Millspaugh, Bahama Fl. 272. 1920.

An asiatic genus of six or more species, some of which have been introduced elsewhere in cultivation, occasionally escaping and becoming naturalized.

KEY TO THE SPECIES

Pedicels 1-2 cm long; capsules elongate, to 20 cm, with dense multicellular hairs 0.5 mm long; bractlets of involucel < 1 mm wide . . . . *A. esculentus*

Pedicels > 3 cm long; capsules ovate-fusiform, 6-8 cm long, with stiff appressed hairs 1-3 mm long; bractlets of involucel 1-2 mm wide . . . . *A. moschatus*

Abelmoschus esculentus (L.) Moench, Methodus 617. 1794.

Basionym: *Hibiscus esculentus* L., Sp. Pl. **2:** 696. 1753.
Holotype: LINN 875.31!.

Erect herb 1-2 m tall; stems sparsely hispid to glabrescent. Leaves large, petioles to 6 cm long; blades palmately 3- to 5-lobed or -parted, to 20 × 24 cm, base often cordate, margin crenate, sparsely hispid above and beneath, especially on nerves. Flowers with peduncles 0.5-2 cm long, becoming stout in fruit (5 mm in diameter at base, incrassate to 10 mm in diameter distally); involucel of ca. 9 bractlets, 10-15 mm long, 0.5 mm wide, hispid, deciduous after anthesis; calyx spathaceous, 15-17 mm long, hispid, splitting laterally at anthesis, deciduous after anthesis; corolla 3.5-4.5 cm long, yellow with dark red center; androecium included, anthers yellow; stigmas maroon. Capsules elongate, to 20 cm long, 3-4 cm in diameter, 5-angular, 5-loculed, minutely pubescent; seeds numerous, 4 mm long.

GENERAL DISTRIBUTION: In cultivation throughout the tropics and subtropics. Unknown in the wild, it may be derived from *Abelmoschus tuberculatus* Pal & Singh of northern India.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts, Barbuda, Antigua, Saba, St. Eustatius, St. Kitts!, Guadeloupe!, Martinique, Barbados.

COMMON NAMES: Okra, chimbombó, gumbo, gonbo, guingambo, molondron, kinkambo, orchra.

NOTES: *Abelmoschus esculentus* is cultivated for its immature fruits, eaten as a vegetable. The seeds are sometimes also used as a coffee substitute.

Abelmoschus moschatus Medikus, Malvenfam. 46. 1787. FIGURE 81.

Basionym: *Hibiscus abelmoschus* L., Sp. Pl. **2:** 696. 1753.

Holotype: Hort. Cliff. 349 (BM); treated by Borssum-Waalkes (Blumea **14:** 92. 1966) as lectotype.

Syn.: *Hibiscus moschatus* Salisb., Prodr. Stirp. Chap. Allerton 384. 1796, nom. illegit. for *Hibiscus abelmoschus* L.

Bamia abelmoschus (L.) R. Br. ex Wallich, Numer. List. 1916. 1829.

Abelmoschus abelmoschus (L.) Karsten, Deut. Fl., ed. 2, **2:** 157. 1894.

Erect herb 1-3 m tall; stems retrorsely hispid. Leaves with petioles 8-15 cm long; blades large, hastately to palmately 5 to 7-lobed or -parted, 15-20 × 18-24 cm, lobes often narrowly linear, margin crenate-serrate, hispid above and beneath. Flowers with peduncles 5-9 cm long, retrorsely hispid, incrassate distally; involucel of ca. 9 bractlets, 8-20 mm long, 1.5-2.5 mm wide, hispid, sometimes persisting in fruit, usually deciduous; calyx spathaceous, 30-35 mm long, hispid, splitting laterally at anthesis, deciduous after anthesis; corolla 7-8 cm long, yellow with dark red center; androecium included, anthers yellow. Capsules fusiform, 6-7 cm long, 3-4 cm in diameter, antrorsely hispid; seeds numerous, 4 mm long.

GENERAL DISTRIBUTION: Southeast Asia and Malesia. Cultivated elsewhere in the tropics and sometimes escaped.

DISTRIBUTION IN LESSER ANTILLES: St. Barts, Saba!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados.

COMMON NAMES: Gambo musque, ambrette, algalia, gombo modi, gombo maudi.

NOTES: *Abelmoschus moschatus* is cultivated for its showy flowers and as a source of bast fibers. It frequently escapes and becomes naturalized, especially in wet habitats.

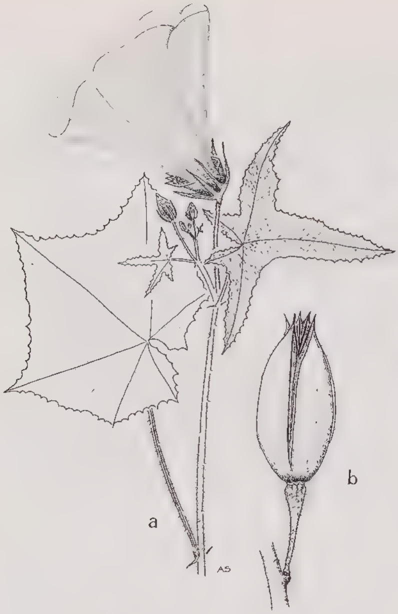
ABUTILON Miller

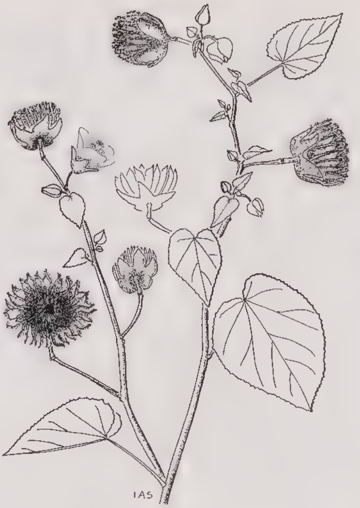
Abutilon Miller, Gard. Dict. abr. ed. 4. 1754.

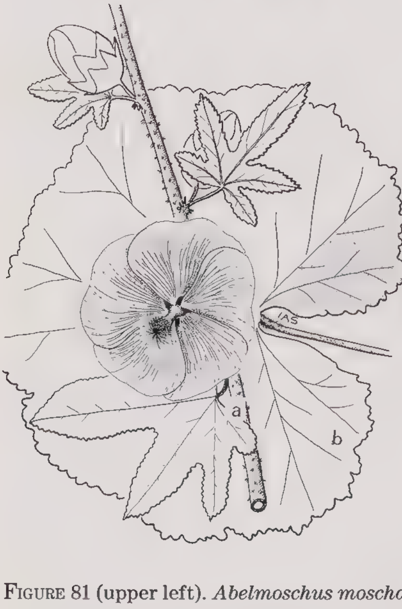
Subshrubs or shrubs to small trees, glabrescent or pubescent, sometimes glandular-pubescent. Leaves elliptic, ovate, or cordate, sometimes lobed or parted, usually crenate or dentate. Flowers axillary, solitary, or aggregated into racemes or panicles, rarely in umbels; involucel absent; calyx gamosepalous, pentamerous, the lobes lanceolate, ovate, or cordate; petals often yellow or yellow-orange, less often white, lavender, or rose; anthers numerous; styles 5 to many, stigmas capitate. Fruits schizocarpic (sometimes pseudo-capsular), mericarps 5 to many, usually apically acute or acuminate to spinescent (rarely rounded); seeds usually 3 to 6 per mericarp, glabrous or slightly pubescent.

LECTOTYPE: *Abutilon theophrasti* Medikus, based on *Sida abutilon* L.

A genus of ca. 200 species from the Americas, Africa, Asia, and Australia.







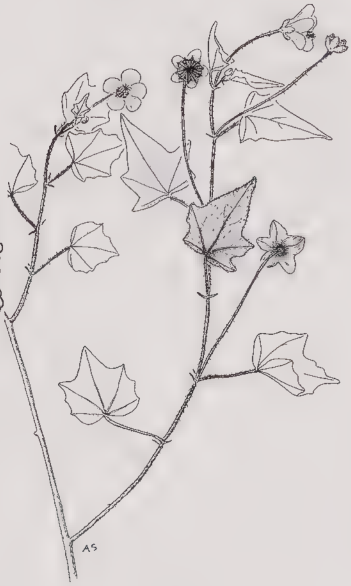


FIGURE 81 (upper left). *Abelmoschus moschatus*: a, flowering branch, × 0.3; b, fruit, × 0.3. FIGURE 82 (upper right). *Abutilon hulseanum*, × 0.3. FIGURE 83 (lower left). *Alcea rosea*: a, flowering shoot, × 0.3; b, basal leaf, × 0.3. FIGURE 84 (lower right). *Anoda acerifolia*, × 0.3.

Cultivated Species

Abutilon grandifolium (Willd.) Sweet from South America was formerly cultivated in the St. Pierre Botanic Garden on Martinique. Fournet (1978) includes *Abutilon americanum* (L.) Sweet, but his description and the specimen he cites (*Hahn 1341*) refer to *A. grandifolium.*

Key to the Species

1. Mericarps (and styles and stigmas) 5 to 12.
2. Mericarps (and styles and stigmas) 5 to 8; flowers and fruits in axillary umbels . . . . *A. umbellatum*
2. Mericarps (and styles and stigmas) 8 to 12; flowers and fruits not umbellate.
3. Stems glabrate; leaves usually prominently lobed; petals yellow with red veins; androecium slightly exserted . . . . *A. striatum*
3. Stems variously pubescent; leaves unlobed or only shallowly so; petals without red veins; androecium shorter than petals.
4. Stipules prominently auriculate-clasping (though often deciduous); petals yellow, 10-12 mm long; inflorescence a terminal panicle; mature fruits ca. 1 cm dia. . . . . *A. auritum*
4. Stipules subulate, inconspicuous; petals rose, 2 cm long; inflorescence a terminal raceme or the flowers solitary; mature fruits 2-2.5 cm dia. . . . . *A. hulseanum*
1. Mericarps (and styles and stigmas) 15 to 25.
5. Stems viscid and with simple hairs 2-5 mm long; leaves subrotund-acuminate, often broader than long, the margin finely serrate; corolla 3.5-4.5 cm dia., yellow-orange with dark red center; calyx equaling or slightly shorter than mature fruit; mericarps (and styles and stigmas) 20 to 25 . . . . *A. hirtum*
5. Stems tomentose or puberulent (not viscid), long simple hairs scarce or absent; leaves ovate, longer than broad; corolla 2-3 cm dia., yellowish without dark center; mericarps (and styles and stigmas) 15 to 22.
6. Stems densely yellowish tomentose; leaves acute, obscurely crenate; calyx ca. 1.5 cm long, subequal to mature fruit; mericarps densely yellowish hirsute (bearded), the hairs 2-3 mm long . . . . *A. guineense*
6. Stems minutely puberulent, occasionally with a few long simple hairs; leaves acuminate, coarsely dentate; calyx 6-11 mm long, half as long as mature fruit or less; mericarps stellate-pubescent, the hairs ca. 1 mm long . . . . *A. indicum*

Abutilon auritum (Wallich ex Link) Sweet, Hort. Brit. ed. **1:** 53. 1826.

Basionym: *Sida aurita* Wallich ex Link, Enum. Hort. Berol. Alt. **2:** 206. 1822.
Type: Hort. Bot. Calcutta ex Java introduction, *Wallich 1860* (neotype, K-W!, designated by Borssum-Waalkes, Blumea **14:** 165-166. 1966; isoneotype, BR!).

Vigorous subshrub 2-4 m tall; stems stellate-tomentose, the hairs 0.5-1 mm long. Leaves with petioles 5-10 cm long; blades ovate-cordate, 10-14 × 9-14 cm, apex acuminate, margin serrate, glabrate or sparsely pubescent above with simple and stellate hairs, softly stellate-pubescent beneath; stipules broadly auriculate-clasping, asymmetrical, many-nerved, to 1.7 cm long, 1 cm wide, pubescent, caducous. Inflorescence an ample terminal panicle. Flowers with pedicels articulate 1-2 cm below the flower, pubescent, the hairs 1-1.5 mm long; calyx 7-9 mm long, hirsute, erect in fruit; petals 10-12 mm long; androecial column stellate-scabrid. Fruits 11-12 mm high; mericarps 8 to 10, apex acute or acuminate, hirsute, the hairs 0.5-1.9 mm long; seeds usually 3 per mericarp, 2.6 mm long, finely stellate-pubescent and slightly scabridulous, the hairs 0.1 mm long.

GENERAL DISTRIBUTION: Java and the Celebes to the Philippines, New Guinea, and Queensland; introduced in Jamaica and the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!.

NOTE: This species has been confused in the literature with the South American *A. giganteum* (Jacq.) Sweet and the West Indian *A. elatum* (Macfad.) Griseb.

Abutilon guineense (Schum.) E. G. Baker & Exell, J. Bot. **74** (Suppl.): 22. 1936.

Basionym: *Sida guineensis* Schum., Beskr. Guin. Pl. 307. 1827; Kongel. Danske Vidensk. Selsk. Naturvidensk. Math. Afh. **4:** 81. 1829.

Type: Guinea (= Ghana), *Thonning 38* (C-5 sheets, s); cf. Hepper, 1976, p. 69.

Shrub to 1 m tall; stems yellowish stellate-tomentulose. Leaves with petioles 3-7 cm long, sometimes setose; blades ovate, 5-12 × 3.5-8 cm, base cordate, apex acute, margin crenate, softly tomentulose beneath, the upper surface with sparser and rougher pubescence. Flowers axillary, solitary; peduncles to 6 cm long, articulated 0.5-1 cm below the flower, yellowish stellate-tomentulose; calyx 12-15 mm long, tomentulose. Fruits 2 cm in diameter; mericarps ca. 20, apex acuminate, densely yellowish hirsute, the hairs 2-3 mm long; seeds 2 or 3 per mericarp, 2-2.5 mm long, subglabrous.

GENERAL DISTRIBUTION: Northern Australia, New Guinea, Java, Celebes, India, Ceylon; in Africa from Guinea to Angola, Ruanda-Burundi and Somalia (?) to the Transvaal, Swaziland, Natal, and Madagascar; West Indies.

DISTRIBUTION IN LESSER ANTILLES: Barbuda, Antigua!, Montserrat!.

COMMON NAME: Monkey bush.

NOTE: This species is often treated as *Abutilon asiaticum* (L.) Sweet (basionym: *Sida asiatica* L.), which is an older name, but I here follow the usage of Meeuse (ex Exell *in* Exell & Wild, Fl. Zamb. **1**(2): 495. 1961) because of the problems of typification of the Linnaean name pointed out by Borssum-Waalkes (Blumea **14:** 176. 1966). Unless or until the name *A. asiaticum* is satisfactorily typified, it will remain ambiguous.

Abutilon hirtum (Lam.) Sweet, Hort. Brit. ed. **1:** 53. 1826.

Basionym: *Sida hirta* Lam., Encycl. **1:** 7. 1783.
Type: India, *Sonnerat s.n.* (holotype, P-LA; IDC 6207. 81: I. 4, photo!).
Syn.: *Sida pilosa* L'Hér., Stirp. Nov. 130. 1789, non Miller (1768), nec Cav. (1785). (Type: India, *Sonnerat s.n.* (P).)
Sida graveolens Roxb. ex Hornem., Hort. Bot. Hafn. Suppl. 77. 1819. (Type: India oriental, *Roxburgh s.n.* (holotype, C; isotypes, BR!, K!).)
Abutilon graveolens (Roxb. ex Hornem.) Wight & Arn. *in* Wight, Cat. Pl. 13. 1833.
Beloere cistiflora Shuttlew. ex A. Gray, Pl. Wright. 1: 21. 1852. (Type: Florida, Key West, *Rugel 94* (holotype, GH!).)
Abutilon indicum (L.) Sweet var. *hirtum* (Lam.) Griseb., Fl. Brit. W. Indian. Is. 78. 1859.
Abutilon graveolens (Roxb. ex Hornem.) Wight & Arn. var. *hirtum* (Lam.) Masters *in* Hook. f., Fl. Brit. India **1:** 327. 1874.

Robust herb ca. 1 m tall; stems viscid and with long simple hairs 2-5 mm long. Leaves with petioles 3-10 cm long; blades cordate, 4-10 × 4-13 cm, base subrotund, apex acuminate, margin finely serrate, softly tomentose beneath, more sparsely pubescent above. Inflorescence of axillary, solitary flowers, but becoming a terminal panicle. Flowers with pedicels 2-3.5 cm long; calyx 12-17 mm long, ca. half-divided, stellate-tomentulose; corolla 18-20 mm long, orange-yellow with dark red center. Fruits ca. 2 cm in diameter, exceeding calyx; mericarps 20 to 25, apex blunt to acute, stellate-hirsute, the hairs ca. 1 mm long; seeds minutely scabridulous, 2.4-2.8 mm long.

GENERAL DISTRIBUTION: Tropical parts of Australia, Asia, and Africa; sporadically adventive in southern Florida, the West Indies, Mexico to Panama, and in parts of South America (Venezuela, Peru).

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, Antigua, St. Kitts!, Montserrat, Guadeloupe!, La Désirade!, Les Saintes!, Martinique!, Grenada, Barbados.

COMMON NAMES: Grosse mauve, mauve-savanne, marie-l'hôpital, buenas tardes.

Abutilon hulseanum (Torrey & A. Gray) Torrey ex A. Gray, Mem. Amer. Acad. Arts. n.s. **4:** 23. 1849. FIGURE 82.

Basionym: *Sida hulseana* Torrey & A. Gray, Fl. N. Amer. **1:** 233. 1838.
Type: Florida, Tampa Bay, *Hulse s.n.* (holotype, NY!).
Syn.: *Abutilon commutatum* Auct., non Schumann.
Abutilon leucophaeum Hochr., Annuaire Conserv. Jard. Bot. Genève **6:** 15. 1902. (Type: Puerto Rico, Guanica, inter Montalba et Salinas, 7 Feb 1886, *Sintenis 3738* (holotype, G?).)

Subshrub 1-1.5 m tall; stems minutely stellate-tomentulose and with long simple hairs 2-3 mm long. Leaves with petioles 2-6 cm long; blades ovate, 5-15 × 11-14 cm, base cordate, apex rounded-acute, margin crenate, softly tomentulose above and beneath. Flowers axillary, solitary; peduncles to 5.5 cm long, articulated 6-11 mm below the flower; calyx 12-15 mm long, stellate-tomentulose, more than half-divided, the lobes cordate and overlapping; corolla ca. 2 cm long, rose-lavender. Fruits 2-2.5 cm in diameter; mericarps ca. 12, apex apiculate, hirsute, the hairs 1-2 mm long; seeds ca. 2 mm long, minutely pubescent.

GENERAL DISTRIBUTION: Florida and southern Texas south to Tabasco, Mexico and the West Indies (Puerto Rico, Jamaica, Cuba).

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe, Martinique.

COMMON NAMES: Terciopelo, mauve.

NOTE: This species is treated as *A. mollissimum* (Cav.) G. Don by Duss (1897) and Fournet (1978) and under *A. commutatum* Schumann by Britton & Wilson (1923-4).

Abutilon indicum (L.) Sweet, Hort. Brit. ed. **1:** 54. 1826.

Basionym: *Sida indica* L., Cent. Pl. **2:** 26. 1756.
Lectotype: LINN 866.29, as microfiche!; see Borssum-Waalkes, Blumea **14:** 173. 1966.
Syn.: *Sida populifolia* Lam., Encycl. **1:** 7. 1783. (Type: India, *Sonnerat s.n.* (holotype, P-LA; IDC 6207. 81: III. 1, photo!).)
Sida coronata Marsili ex Scop., Delic. Fl. Faun. Insubr. **3:** 1, *t. 1.* 1788. (Type: loc. cit. *t. 1.*)
Sida beloere L'Hér., Stirp. Nov. **1:** 130. 1789. (Type: Rheede, Hort. Malab. 6, *t. 45.*)
Abutilon populifolium (Lam.) Sweet, Hort. Brit. ed. **1:** 53. 1826.
Abutilon leiospermum Griseb., Fl. Brit. W. Indian Is. 79. 1859. (Type: Jamaica, *March 129* (holotype, GOET!; isotype, K!).)
?*Abutilon subpapyraceum* Hochr., Annuaire Conserv. Jard. Bot. Genève **6:** 23. 1902. (Type: St. Thomas, Pollyberg, Nov 1880, *Eggers 117* (holotype, G).)
Sida philippinensis Gand., Bull. Soc. Bot. France. **71:** 631. 1924. (Type: Philippines, *Cuming 748* (isotypes A!, BM, FI, G, K!, L, MEL, P).)

Herb or subshrub 0.5-2 m tall; stems minutely puberulent, occasionally with a few long simple hairs. Leaves with petioles 1.5-8 cm long; blades ovate, 3-10 × 6-8 cm, base cordate, apex acuminate, margin coarsely and remotely dentate, minutely puberulent above and beneath, densely so beneath. Flowers axillary, solitary or paired; peduncles 3-6 cm long, articulated 4-10 mm below the flower; calyx 6-11 mm long, minutely puberulent; corolla 1-1.5 cm long, yellowish. Fruits 2 cm in diameter, stellate-pubescent, the hairs 0.5-1 mm long; mericarps 15 to 20, apex apiculate; seeds 2.5 mm long, minutely verruculate.

GENERAL DISTRIBUTION: Widely distributed in the tropics, from Malesia, Asia, and Africa to South America and the West Indies; probably adventive in the Americas.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts!, Antigua!, St. Kitts!, Montserrat, Guadeloupe!, Marie Galante!, Dominica!, Martinique, Grenada!, Barbados!.

COMMON NAMES: Guimauve, mauve, monkey bush.

Abutilon striatum Dickson ex Lindley, Bot. Reg. **25:** 39. 1839.

Type: Dickson in Maund, Botanist **3:** *t. 144.* 1839.
Syn.: *Abutilon venosum* Lemaire, Fl. Serres Jard. Eur. **2**(3): *t. 5.* 1846. (Type: loc. cit. *t. 5;* based on a specimen growing in "jardin Van Houtte.")
Sida striata (Dickson ex Lindley) D. Dietr., Syn. Pl. **4:** 852. 1847.
Abutilon thompsoni André, Rev. Hort. Belge Étrangère **11:** 7, *t. 1.* 1885. (Type: loc. cit. *t. 1.*)

Shrub 2-4 m tall, largely glabrate. Leaves with petioles 4-6 cm long; blades truncate to cordate, moderately 3-lobed to deeply 5-parted, 9-10 × 8-12 cm, lobes lanceolate, apex acuminate, margin serrate. Flowers axillary, solitary; peduncles slender, 6-15 cm long, articulated 2-9 mm below the flower; calyx 1.5-3 cm long, ca. half-divided, sparsely and minutely stellate-pubescent; petals 3.5-4.5 cm long, yellow with dark red claw and conspicuous dark red venation; androecium yellow, equaling or slightly exceeding corolla. Fruits ca. 2 cm in diameter; mericarps 8 to 10, apex rounded, minutely stellate-pubescent.

GENERAL DISTRIBUTION: Native to Brazil and perhaps elsewhere; cultivated and naturalized in other parts of tropical America.

DISTRIBUTION IN LESSER ANTILLES: Martinique (in cult.)!.

Abutilon umbellatum (L.) Sweet, Hort. Brit. ed. **1:** 53. 1826.

Basionym: *Sida umbellata* L., Syst. Nat. ed. 10, **2:** 1145. 1759.
Type: LINN 866.16, as microfiche!.

Shrub 1-2 m tall, densely stellate-pubescent. Leaves with petioles 1.5-3 cm long; blades broadly ovate or weakly 3-lobulate, 3-5 × 4-5 cm, base cordate, apex acute or acuminate, margin crenate or serrate, minutely stellate-pubescent, more densely so beneath. Inflorescences axillary, few-flowered umbels, these sometimes aggregated apically. Flowers with calyx 6-8 mm long, base rounded, half-divided, prominently hirsute, the hairs sometimes 2-3 mm long; petals yellowish, 5-8 mm long. Fruits 6-10 mm in diameter, mericarps 6 to 8, with divergent apical spines 2-4 mm long, hirsute; seeds 2 mm long, papillate.

GENERAL DISTRIBUTION: West Indies and southern Texas to Central and South America (Venezuela to Peru).

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts!, Antigua!, Montserrat!, Guadeloupe!, the Grenadines!, Grenada!.

COMMON NAME: Malvavisco cimarron.

ALCEA L.

Alcea L., Sp. Pl. **2:** 687. 1753.

Strict annual, biennial, or perennial, 1-3 m tall, roughly pubescent or sometimes glabrate. Leaves long-petiolate; blades orbiculate to 5 to 7-angled or

-parted, base cordate, margin crenate, roughly pubescent. Flowers showy, subsessile or shortly pedicellate, aggregated into terminal spiciform or racemiform inflorescences; involucel of 5 to 11 bracts, more or less connate basally, persistent; calyx 5-lobed, broadly rounded basally; corolla usually > 3 cm long, rotate; androecium glabrous, compact; styles 18 or more, stigmatic surface unilaterally decurrent. Fruits schizocarpic, disciform; mericarps 18 or more, laterally compressed and circular, with prominent ventral notch, indehiscent, glabrous or pubescent, variously smooth, wrinkled, winged, furrowed, etc.; seeds solitary.

LECTOTYPE: *Alcea rosea* L; see A. S. Hitchcock & M. L. Green, Prop. Brit. Bot. 1929.

A genus of more than 50 species from the Middle East and the eastern Mediterranean, of which a few are cultivated for their showy flowers, especially *A. rosea.* It should be noted that *Althaea* and *Alcea* are distinct genera.

Alcea rosea L., Sp. Pl. **2:** 687. 1753. FIGURE 83.

Type: LINN 869.1, as microfiche!.
Syn.: *Althaea rosea* (L.) Cav., Diss. **2:** 91, *t. 29, fig. 3.* 1786.
Althaea caribaea Sims, Bot. Mag. **44:** *t. 1916.* 1817. (Type: no extant material known; described and drawn from a plant raised from seeds obtained from John Walker from somewhere in the West Indies.)

Strict perennial 1-2.5 m tall, roughly pubescent. Leaves with petioles 4-9 cm long; blades orbiculate to 5- to 7-angled, 7-10 × 8-14 cm, base cordate, margin crenate, roughly pubescent. Flowers showy, subsessile, aggregated into terminal, leafless spiciform inflorescences; involucel of 6 to 7 broadly triangular bracts, connate basally; calyx 5-lobed, exceeding the involucel, tomentose; corolla 8-19 cm in diameter, sometimes double, in a wide variety of colors; styles 20 to 40. Fruits enclosed by calyx; mericarps 20 to 40, horseshoe-shaped, dorsally channeled and winged, pubescent.

GENERAL DISTRIBUTION: Cultivated worldwide as an ornamental; originating in the Balkans, probably of complex ancestry, not certainly known in the wild although it sometimes escapes from cultivation.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!, Barbados!.

COMMON NAMES: Hollyhock, vara de San José, rose trémière.

NOTES: *Alcea rosea* is widely known as a garden ornamental. It is also grown as a source of dyestuffs, of mucilage for medicinal use, and of oil from the seeds.

BASTARDIA Kunth

Bastardia Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 197 (ed. folio, 254 (ed. quarto). 1822.

Herbs or shrubs 0.5-3 m tall, stellate-pubescent and sometimes with long simple hairs, glandular hairs, or both. Leaves petiolate; blades cordate-ovate, apex acuminate, margin subentire to serrate, pubescent or viscid. Flowers solitary or paired in axils of leaves or aggregated into terminal panicles; involucel absent; calyx 5-nerved, 5-lobed, divided almost to base, lobes acuminate; corolla yellowish. Fruits pseudocapsular (septicidal dehiscence suppressed), muticous or beaked; mericarps 5 to 8, dorsally rounded; seeds solitary, pubescent to subglabrous.

LECTOTYPE: *Bastardia parvifolia* Kunth = *Bastardia viscosa* (L.) Kunth var. *viscosa*; see N. L. Britton & C. F. Millspaugh, Bahama Fl. 270. 1920.

A tropical American genus of 4 to 8 species that extends from southern Texas to Brazil and Peru, including the West Indies.

KEY TO THE TAXA

Plants with short-glandular hairs and with long simple hairs more or less throughout. . . . . *B. viscosa* var. *viscosa*

Plants stellate-tomentose (glandular hairs absent), the long simple hairs few or absent . . . . *B. viscosa* var. *sanctae-crucis*

Bastardia viscosa (L.) Kunth var. **sanctae-crucis** R. E. Fries, Kongl. Svenska Vetenskapsakad. Handl. ser. 3, **24**(2): 22, *t. 5, fig. 1.* 1947.

Type: West Indies, probably St. Croix, Virgin Islands, collector unknown (holotype, S).

Shrub 0.3-1 m tall; stems non-viscid, densely stellate-tomentulose, with few or no long simple hairs. Leaves with petioles 1-1.5 cm long; blades cordate-ovate, 1-4 × 0.8-2.5 cm, apex acute or acuminate, margin serrate, softly tomentulose above and beneath. Flowers solitary or paired, or inflorescence sometimes a terminal panicle; peduncles slender; calyx 4-5 mm long, deeply 5-lobed, the lobes apiculate with prominent midrib; corolla yellowish, small. Fruits 4-5 mm in diameter; mericarps 6 or 7, minutely apiculate, loculicidally dehiscent, tomentulose; seeds solitary, 1.8-2 mm long, glabrate or sparsely pubescent.

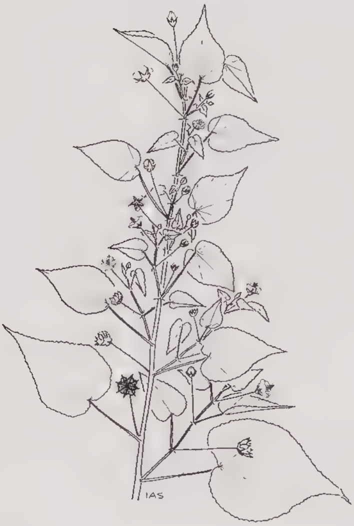
GENERAL DISTRIBUTION: Apparently confined to the West Indies, in Curaçao and elsewhere.

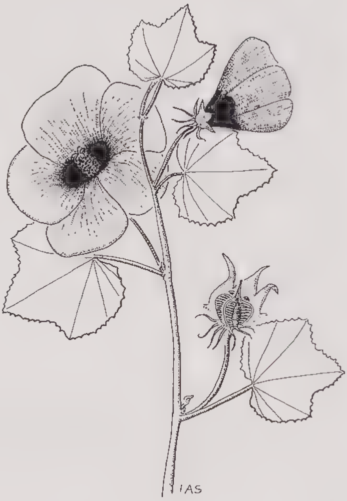
DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!.

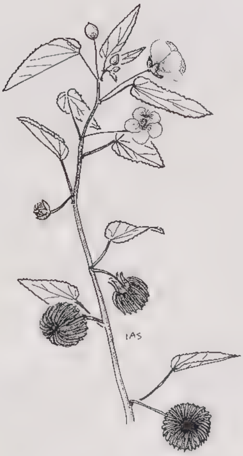
NOTE: This is evidently the plant referred by Adams (1972) to var. *parvifolia*, but Kunth described the latter plant from Peru as having viscid herbage.

Bastardia viscosa (L.) Kunth var. **viscosa** *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 199 (ed. folio), 256 (ed. quarto). 1822. FIGURE 85.

Basionym: *Sida viscosa* L., Syst. Nat. ed. 10, **2:** 1145. 1759.
Type: Sloane, Voy. Jamaica *t. 139, fig. 4.* 1707.
Syn.: *Sida foetida* Cav., Diss. **6:** 349, *t. 196, fig. 1.* 1788. (Type: Peru, Lima ex R. Hort. Par. (holotype, MA; photo BM, K!).)







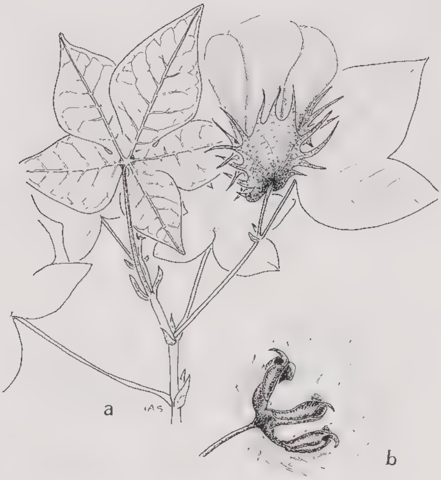


FIGURE 85 (upper left). *Bastardia viscosa*, × 0.35. FIGURE 86 (upper right). *Fioria vitifolia*, × 0.35. FIGURE 87 (lower left). *Gaya occidentalis*, × 0.35. FIGURE 88 (lower right). *Gossypium barbadense*: a, flowering branch, × 0.35; b, fruit, × 0.35.

Bastardia parvifolia Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 198 (ed. folio), 255 (ed. quarto), *t. 472. 1822.* (Type: Peru, Cajamarca, prov. Jaen de Bracamoros, inter Pongo de Rentema et vicum Tomependae, *Humboldt & Bonpland s.n.* (holotype, P; IDC 6209. 129: III. 5, photo!).)

Sida bastardia DC., Prodr. **1:** 467. 1824, based on *Bastardia parvifolia* Kunth.

Bastardia viscosa (L.) Kunth var. *parvifolia* (Kunth) Griseb., Fl. Brit. W. Indian Is. 80. 1859.

Shrub 0.5-1 m tall; stems viscid, sometimes also with long simple hairs. Leaves with petioles 2-6 cm long; blades cordate-ovate, 4-12 × 3-10 cm, apex acuminate, margin subentire to serrate, softly tomentose above and beneath, often viscid above. Flowers solitary or paired; peduncles slender; calyx 4-5 mm long, deeply 5-lobed, the lobes apiculate with prominent midrib, tomentose; corolla yellowish, small. Fruits 6-7 mm in diameter; mericarps 7 or 8, muticous, loculicidally dehiscent, tomentulose; seeds solitary, 2-2.2 mm long, minutely pubescent.

GENERAL DISTRIBUTION: Southern Texas to Peru, including the West Indies.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts, Antigua!, Grenada, Barbados.

COMMON NAMES: Balai-grand, viscid mallow.

FIORIA Mattei

Fioria Mattei, Boll. Reale Orto Bot. Giardino Colon. Palermo ser. 2, **2:** 71. 1917.

Herbs or subshrubs 1-2.5 m tall with mixed glandular hairs, stellate-puberulence, and harsh stellate-pubescence. Leaves long-petiolate; blades broadly ovate or more commonly 3- to 5-lobed, base cordate, apex acute, margin crenate-serrate. Flowers axillary, solitary, exceeding the subtending petiole; involucel 8- to 9-parted, the bractlets shorter than the calyx, distinct; calyx campanulate, half-divided; corolla bright yellow with conspicuous maroon center and prominent meandering veins; androecium much shorter than corolla, purplish; style apically 5-parted, hirsute, stigmas capitate. Fruits oblate with apical beak, 5-celled, 5-winged, transversely veined, stellate-pubescent and hispid; seeds several per locule, subglabrous.

TYPE: *Fioria vitifolia* (L.) Mattei (*Hibiscus vitifolius* L.).

A genus originally described to contain three species, two with relatively restricted African distributions, the third more or less pantropical and quite variable. The genus may need to be restricted to the single widespread species. Often submerged in *Hibiscus* as section *Pterocarpus* Garcke, the taxon is recognized in generic rank by Kearney (Leafl. W. Bot. **7:** 272-273. 1955) and by Kundu & Biswas (Bull. Bot. Surv. India **16:** 125-138. 1974). *Fioria* has greater affinity for *Kosteletzkya* than for *Hibiscus*, but differs from the former in having several seeds per locule (vs. seeds solitary) and a chromosome number of $2n = 34$ (vs. $2n = 38$).

Fioria vitifolia (L.) Mattei, Boll. Reale Orto Bot. Giardino Colon. Palermo ser. 2, **2:** 72. 1917. FIGURE 86.

Basionym: *Hibiscus vitifolius* L., Sp. Pl. **2:** 696. 1753, non Miller (1768).

Lectotype: Herb. Hermann **4:** 39, no. 265 (BM), designated by Brenan & Exell (Bol. Soc. Brot. ser. 2, **32:** 70. 1958).

Syn.: *Abelmoschus vitifolius* (L.) Hassk., Cat. Hort. Bot. Bogor. 198. 1844.

Hibiscus obtusifolius Willd., Sp. Pl. **3:** 839. 1800. (Type: India, *Klein s.n.* (holotype, B-W #12899; IDC 7440. 924: I. 4, 5, photo!).)

Hibiscus heterotrichus DC., Prodr. **1:** 450. 1824. (Type: without locality or collector (holotype, G-DC: IDC 2562. 197: III. 5, photo!).)

Hibiscus lepidospermus Miq., Fl. Ned. Ind. **2:** 159. 1857, non Masters ex Oliver (1868). (Type: Java, Puger, *Zollinger 2730* (holotype, P; isotypes, BM, P).)

Herbs or subshrubs to 2.5 m tall; stems stellate-tomentulose and with scattered, stout, pungent hairs and some glandular hairs. Leaves with petioles 3-10 cm long; blades commonly 3-lobed, often broader than long, 3-10 × 2-6 cm, base cordate, apex acute, margin crenate-serrate, minutely stellate-tomentulose above and beneath, also with scattered scabrid stellate hairs beneath. Flowers with peduncles 2-6 cm long; bracts of involucel linear-subulate, 8-12 mm long; calyx 10-15 mm long, accrescent to 22 mm, stellate-pubescent; petals 4-5 cm long, bright yellow with dark maroon spot on lower third, prominently veined. Fruits 1-1.5 cm in diameter, depressed but with prominent beak 3-5 mm long, 5-winged, transversely veined, stellate-pubescent and hispid; seeds ca. 3 mm long, subglabrous.

GENERAL DISTRIBUTION: Widespread in tropics of the Old World, naturalized in parts of the West Indies.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, St. Kitts!, Guadeloupe, Dominica!, Martinique!, St. Vincent!, Grenada!, Barbados.

COMMON NAME: Wild Okra.

GAYA Kunth

Gaya Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen Sp. **5:** 207 (ed. folio), 266 (ed. quarto). 1822.

Herbs or subshrubs, minutely puberulent, sometimes also pilose. Leaves sometimes distichous, petiolate; blades ovate to oblong, base cordate, apex acute, margin crenate, serrulate, or subentire, minutely puberulent. Flowers axillary, solitary, sometimes nodding; involucel absent; calyx small, basally rounded, more than half-divided, not prominently nerved; petals yellow (rarely lavender), 0.5-1.5 cm long; androecium included, anthers yellow or orange; styles slender. Fruits subglobose to broadly subconical; mericarps 8 to 30, dehiscent, 1-seeded, usually with specialized pectinate endoglossum arising ventrally and enclosing seed, sparsely pubescent to glabrate; seeds more or less puberulent.

LECTOTYPE: *Gaya hermannioides* Kunth.

A tropical American genus of perhaps ten species.

Gaya occidentalis (L.) Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 208 (ed. folio), 268 (ed. quarto). 1822. FIGURE 87.

Basionym: *Sida occidentalis* L., Cent. Pl. **2:** 26. 1756.
Type: Dill., Hort. Eltham. *t. 6, fig. 6.*
Syn.: *Abutilon deflexum* Moench, Methodus **1:** 620. 1794, based on *Sida occidentalis* L.
Gaya subtriloba Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 210 (ed. folio), 270 (ed. quarto). 1822. (Type: Novo Granatensis, *Humboldt & Bonpland s.n.* (holotype, P; IDC 6209. 130: II. 7, photo!).)
Gaya affinis A. Rich. *in* Sagra, Hist. Fis. Cuba, Bot. 60. 1845 [1841]. (Type: Cuba, *Sagra s.n.* (holotype, P; isotype, US!).)
Sida cubensis D. Dietr., Syn. Pl. **4:** 851. 1847, based on *Gaya affinis* A. Rich.
Abutilon cubanum Millsp., Publ. Field Columbian Mus., Bot. Ser. **2:** 70. 1900. (Type: Cuba, Santiago, San Juan Hill, *Millspaugh 1051* (holotype, F!).)

Shrubs 1-1.5 m tall, frequently with distichous branching pattern; stems minutely stellate-tomentose. Leaves with petioles 1-2 cm long; blades ovate to oblong, 2-4 × 1-2.5 cm, base cordate, apex acute, margin serrulate, minutely stellate-pubescent above and beneath. Flowers with peduncles exceeding the subtending petioles; calyx 8-10 mm long, the lobes somewhat apiculate, tomentose; corolla pale yellow, ca. 1.5 cm long; androecium included. Fruits schizocarpic, subglobose, 1.5-2.5 cm in diameter; mericarps ca. 30, thin and papery, fully dehiscent, with a pectinate endoglossum nearly 1 cm long curved around solitary seed, minutely pubescent; seeds 2.5 mm long, densely puberulent.

GENERAL DISTRIBUTION: Eastern Mexico, Honduras, Nicaragua, Cuba, and Hispaniola.

DISTRIBUTION IN LESSER ANTILLES: St. Barts, fide Stehlé (1943), who cites a specimen of Wikström.

GOSSYPIUM L.

Gossypium L., Sp. Pl. **2:** 693. 1753.

Shrubs or sometimes trees, stellate-pubescent or glabrate, more or less gland-dotted throughout. Leaves petiolate; blades ovate to deeply parted, margin entire, usually with 1 or more nectaries on principal veins beneath. Flowers axillary, solitary or in sympodial inflorescences; pedicels usually surmounted by trimerous nectaries; involucel trimerous, the bracts small and scalelike or large and foliaceous, enclosing the bud, cordate, laciniate, and persistent; calyx gamosepalous, truncate or 5-dentate; petals usually large and showy, cream, yellow or rose, sometimes with dark spot at base; androecium included, anthers numerous; style solitary with decurrent stigmatic lobes, more or less exceeding the androecium. Capsules 3- to 5-celled, usually glabrous, often prominently gland-dotted; seeds usually lanate.

LECTOTYPE: *Gossypium arboreum* L; see N. L. Britton & C. F. Millspaugh, Bahama Fl. 273. 1920.

A tropical and subtropical genus of ca. 40 species, many from relatively arid areas of Africa, the Middle East, Australia, Mexico, and South America. Some species have been widely dispersed in cultivation as a source of commercial cotton. For further information on this important genus see P. Fryxell, Techn. Bull. U.S.D.A. **1491:** 1-114. 1976; Taxon **18:** 585-591. 1969; and The Natural History of the Cotton Tribe (Malvaceae, Tribe Gossypieae), Texas A & M Press, 1979.

KEY TO THE SPECIES

Teeth of involucellar bracts gradually acuminate from the base, the sinuses more or less rounded; leaves 3- to 7-lobed, the central lobe ovate to lanceolate, usually more than 1.5 times as long as broad; capsules usually 3-celled, more or less elongate, pitted . . . . *G. barbadense*

Teeth of involucellar bracts triangular and acute, or lanceolate and acuminate in distal portion, the sinuses more or less acute; leaves 3- to 5-lobed, the central lobe triangular to ovate, usually 1-1.5 times as long as broad; capsules 3- to 5-celled, usually ovoid to subglobose, smooth . . . . *G. hirsutum*

NOTE: *G. barbadense* and *G. hirsutum* are distinct species, both of which are quite variable and have expanded their ranges in cultivation in historic and prehistoric times. The Lesser Antilles (and other parts of the West Indies) have apparently been a contact zone where hybridization and introgression have occurred. Consequently, the determination of individual specimens from the Lesser Antilles is often problematic because of this introgression.

Gossypium barbadense L., Sp. Pl. **2:** 693. 1753. FIGURE 88.

Lectotype: Pluk., Phytographia *t. 188, fig. 1.* 1692. Reprinted by Watt, Wild Cult. Cotton *pl. 46.* 1907.

Syn.: *Gossypium vitifolium* Lam., Encycl. **2:** 135. 1786. (Type: Celebes, *Sonnerat s.n.* (holotype, P-LA; IDC 6207. 88: II. 3, photo!).)

Gossypium peruvianum Cav., Diss. **6:** 313. 1788. (Type: Peru, collector unknown (MA, photo US!).)

Gossypium lapideum Tussac, Fl. Antill. **2:** 67. 1818. (Type: specimen unknown.)

Gossypium brasiliense Macfad., Fl. Jamaica **1:** 72. 1837. (Type: specimen unknown.)

Gossypium barbadense L. var. *integrum* Griseb., Fl. Brit. W. Indian Is. 86. 1859. (Type: St. Kitts, *Elsey s.n.* (holotype, GOET).)

Hibiscus barbadensis (L.) Kuntze, Revis. Gen. Pl. **1:** 67. 1891.

Gossypium barbadense L. forma *eggersii* Roberty, Candollea **13:** 83. 1950. (Type: Antilles, *Eggers 342* (holotype, G).)

Gossypium barbadense L. forma *hahnii* Roberty, Candollea **13:** 89. 1950. (Type: Martinique, *Hahn 495* (holotype, G).)

Shrubs 1-3 m tall, sometimes arborescent, sparsely stellate-pubescent to glabrate, gland-dotted throughout, the glands usually dark-pigmented. Leaves with petioles 3.5-15 cm long; blades 3- to 7-lobed, aceriform, 5-15 × 9-20 cm, lobes ovate to lanceolate; stipules often prominent, subulate to falcate, 1-5 cm long. Flowers solitary or in sympodial inflorescences; bracts of involucel broadly ovate, foliaceous, laciniate; calyx truncate; petals to 8 cm long, usually yellow with dark red spot at base. Capsule usually narrowly elongate, 3-celled, prominently pitted, glabrous; seeds several per locule, free or fused together, lanate, the hairs (cotton) usually white.

General distribution: Originally from South America, now cultivated in many parts of the world, both as a commercial agricultural crop (United States, Peru, Egypt, U.S.S.R.) and as a dooryard cultivar throughout the tropics.

Distribution in Lesser Antilles: Barbuda, Antigua!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Barbados.

Common names: Coton, cotonnier, coton ''sea island,'' kidney cotton, sea island cotton.

Note: Additional names of species and subspecific taxa attributed to the West Indies, but not specifically to the Lesser Antilles, are listed by Fryxell (1976). Many have not been associated with specimens and are typified by the description, and therefore have not been placed with respect to origin.

Gossypium hirsutum L., Sp. Pl. ed. 2, **2:** 975. 1763.

Holotype: Miller's description of *Gossypium* no. 4, Gard. Dict. ed. 6. 1752.

Syn.: *Gossypium religiosum* L., Syst. Nat. ed. **12:** 462. 1767. (Holotype: LINN 874.6, as microfiche!.)

Gossypium latifolium Murray, Novi Comment. Soc. Regiae Sci. Gott. **7:** 22, *t. 1.* 1776. (Type: loc. cit. *t. 1.*)

Gossypium punctatum Schum., Beskr. Guin. Pl. 309. 1827. (Type: *Thonning 327,* ''no specimen traced,'' Hepper, 1976, p. 69.)

Gossypium taitense Parl., Sp. Cotoni 39. 1866. (Type: Tahiti, *Moerenhout s.n.* (holotype, FI; isotype, G-DC, IDC 2562. 199: III. 3, photo!).)

Gossypium mexicanum Tod., Ind. Sem. Panorm. **1867:** 20, 31. 1868. (Type: cultivated in Hort. Bot. Panorm., anno 1868 e seminibus e Mexico acceptis, *Todaro s.n.* (PAL).)

Gossypium birkinshawii Watt, Kew. Bull. **1927:** 330. 1927. (Type: the Grenadines, Canouan, 14 Jan 1915, *Birkinshaw s.n.* (holotype, K!).)

Gossypium marie-galante Watt, Kew Bull. **1927:** 344. 1927. (Type: the Grenadines, Union Island, 11 Jan 1914, *Birkinshaw s.n.* (holotype, K!).)

Gossypium barbadense L. var. *marie-galante* (Watt) A. Chev., Rev. Int. Bot. Appl. Agric. Trop. **18:** 118. 1938.

Gossypium hirsutum L. var. *marie-galante* (Watt) J. B. Hutch., Evol. *Gossypium* 43. 1947.

Shrub 1-2 m tall, more or less stellate-pubescent, gland-dotted throughout. Leaves with petioles 3-8 cm long; blades weakly 3- to 5-lobed, 10-15 × 12-15 cm; stipules subulate, 0.5-1.5 cm long. Flowers usually in sympodial inflorescences; bracts of involucel ovate, foliaceous, laciniate; calyx truncate or 5-toothed; petals to 5 cm long, cream-colored or pale yellow, with or without dark spot at base. Capsule broadly ovoid to subglobose, 3- to 5-celled, smooth, glabrous; seeds several per locule, free, lanate, the hairs (cotton) white, tan, or red-brown.

GENERAL DISTRIBUTION: Originally from Central America, Mexico, and the Greater Antilles, now cultivated in many parts of the world as a commercial agricultural crop (United States, Mexico, Africa, Pakistan, U.S.S.R., China, Australia, and elsewhere) and as a dooryard cultivar in many parts of the tropics; also found feral or wild in parts of the Caribbean, Central America, and in the South Pacific.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Guadeloupe!, Dominica!, Martinique!.

COMMON NAMES: Cotonnier, coton, coton-pays.

HERISSANTIA Medikus

Herissantia Medikus, Vorles. Churpfälz. Phys.-Öcon. Ges. **4**(1): 244. 1788.

Syn.: *Bastardia* Kunth sect. *Gayoides* Endl., Gen. Pl. 986. 1840.
Bogenhardia Reichb., Repert. Herb. **1:** 200. 1841; **2:** 48. 1841, nom. illegit.
Abutilon Miller sect. *Gayoides* (Endl.) A. Gray, Gen. Amer. Bor. **2:** 167. 1849.
Abutilon Miller sect. *Gayopsis* Griseb., Fl. Brit. W. Indian Is. 79. 1859.
Gayoides (Endl.) Small, Fl. S.E. U.S. 764. 1903, nom. illegit.
Pseudobastardia Hassler, Bull. Soc. Bot. Genève, sér. 2, **1:** 209. 1909, nom. illegit.

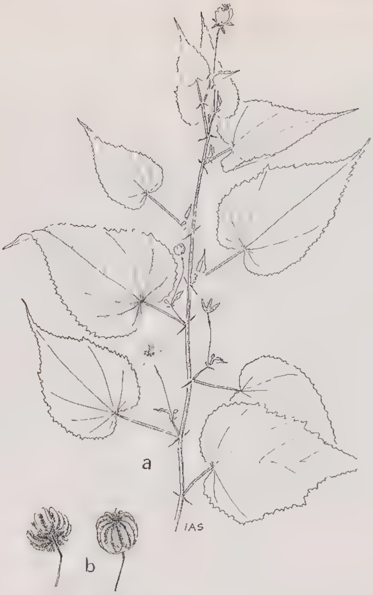
Herbs or subshrubs, erect or decumbent, pubescent or hirsute, sometimes viscid. Leaves ovate, base cordate, margin dentate. Flowers axillary, solitary; involucel absent; calyx gamosepalous, 5-lobed, the lobes lanceolate or ovate; corolla white or yellow; androecium included. Fruits oblate, inflated, pendulous; mericarps 10 or more, dehiscent with fragile walls, 1- to 3-seeded, pubescent or hispid; seeds minutely scabridulous.

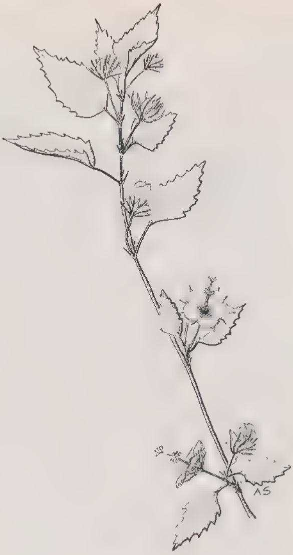
TYPE: *Herissantia crispa* (L.) Briz., based on *Sida crispa* L.

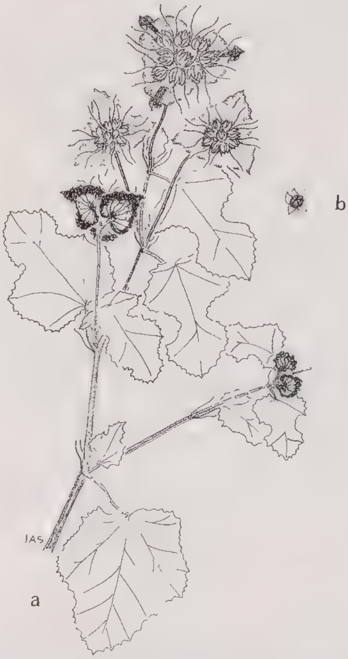
A small neotropical genus, one species of which (*H. crispa*) is widely distributed from the United States to Argentina as well as elsewhere. The remaining species have restricted distributions, one from the West Indies, one from Mexico, and two or more from Brazil.

Herissantia crispa (L.) Briz., J. Arnold Arbor. **49:** 279. 1968. FIGURE 89.

Basionym: *Sida crispa* L., Sp. Pl. **2:** 685. 1753.
Lectotype: Dill., Hort. Eltham. *t. 5.* 1732.
Syn.: *Abutilon crispum* (L.) Medikus, Malvenfam. 29. 1787.
Sida imberbis DC., Prodr. **1:** 469. 1824. (Type: Guadeloupa et Sancto Domingo, *Bertero s.n.* (holotype, G-DC; IDC 2562. 204: II. 3, photo!).)







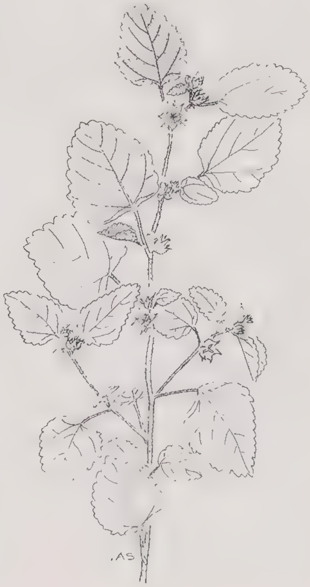


FIGURE 89 (upper left). *Herissantia crispa*: a, flowering branch, × 0.35; b, two views of fruit, × 0.35. FIGURE 90 (upper right). *Hibiscus phoeniceus*, × 0.35. FIGURE 91 (lower left). *Malachra capitata*: a, fruiting branch, × 0.4; b, fruit, × 0.4. FIGURE 92 (lower right). *Malvastrum corchorifolium*, × 0.35.

Sida retrofracta DC., Prodr. **1:** 467. 1824. (Type: Martinique, in 1822, *Daby s.n.* (holotype, G-DC; IDC 2562. 203: II. 5, photo!).)
Beloere crispa (L.) Shuttlew. ex A. Gray, Pl. Wright. **1:** 21. 1862.
Gayoides crispum (L.) Small, Fl. S.E. U.S. 764. 1903.
Gayoides imberbe (DC.) Small, Fl. S.E. U.S. 764. 1903.
Pseudobastardia crispa (L.) Hassler, Bull. Soc. Bot. Genève **1:** 211. 1909.
Bogenhardia crispa (L.) Kearney, Leafl. W. Bot. **7:** 120. 1954.

Perennial subshrub, erect or decumbent, sometimes scandent, minutely stellate-puberulent. Leaves petiolate below to subsessile apically, the petioles 0.5-2.5 cm long; blades cordate-ovate, 3.5-9 × 2-5 cm, apex acute or acuminate, margin crenate, minutely stellate-puberulent above and beneath. Flowers with peduncles slender, sometimes exceeding subtending leaves; calyx 4-7 mm long; corolla 6-11 mm long, white; androecium yellow, included. Fruits 13-20 mm in diameter; mericarps 10 to 12, dehiscent dorsally, papery, hispid; seeds 3, minutely scabridulous.

GENERAL DISTRIBUTION: From the southern United States to Argentina; also adventive in the Old World.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts, Guadeloupe!, Martinique!, St. Vincent!, the Grenadines!, Grenada!.

NOTES: *Herissantia crispa* is common and often weedy through much of the neotropics. It is probably adventive over much of this range, but its "original" range is not clearly known.

HIBISCUS L.

Hibiscus L., Sp. Pl. **2:** 693. 1753, nom. cons.

Subshrubs, shrubs, or trees, glabrescent, pubescent, or hispid. Leaves elliptic, lanceolate, ovate, or cordiform, sometimes lobed or parted, margin dentate or less commonly subentire. Flowers usually solitary, sometimes aggregated apically; peduncles long or short; involucel of 8 to 10 (to 20) bracts; calyx 5-lobed; corolla often large and showy, of various colors; anthers numerous, the staminal column included or exserted; styles 5, free, the stigmas capitate. Capsules 5-celled, dehiscent, glabrous or pubescent; seeds several per locule, glabrescent or hirsute.

TYPE: *Hibiscus syriacus* L., typ. cons.

A genus of about 200 species from the Americas, Africa, Asia, Australia, and elsewhere, including several species grown as ornamentals.

CULTIVATED SPECIES

Questel (1951) cites *H. calycinus* Willd. (= *H. calyphyllus* Cav.) from Africa as cultivated, but no specimens have been seen. *Hibiscus heterophyllus* Vent. from Australia was formerly cultivated in the St. Pierre Botanic Garden, Martinique.

KEY TO THE SPECIES

1. Calyx lobes with prominent marginal costae, usually (except *H. radiatus*) with prominent nectary on midrib of each calyx lobe; bracts of involucel distinct, usually (except *H. cannabinus* and *H. sabdariffa*) bifurcate; $2n = 36, 72$ (sect. *Furcaria*).
   2. Bracts of involucel simple; corolla yellow with maroon center; leaves usually deeply lobed; nectaries present on leaves and midribs of calyx lobes; stems glabrous or nearly so.
      3. Calyx red, becoming fleshy in fruit, with fine soft hairs. . *H. sabdariffa*
      3. Calyx green, remaining membranous, with stiff, conspicuous, pustular-based hairs. . . . . *H. cannabinus*
   2. Bracts of involucel bifurcate (rarely simple in *H. radiatus*); corolla lavender or purple; leaves variously lobed; nectaries present or absent on leaves and midribs of calyx lobes; stems glabrous to densely pubescent.
      4. Nectaries absent on leaves and midribs of calyx lobes; corolla purple . . . . *H radiatus*
      4. Nectaries present on leaves and midribs of calyx lobes; corolla lavender; plants of swampy habitats.
         5. Stems densely stellate-pubescent; involucel shorter than calyx; leaves pubescent, shallowly lobed (or narrow and reduced in inflorescence . . . . *H. furcellatus*
         5. Stems sparsely aculeate, otherwise glabrous; involucel longer than calyx; leaves glabrate, prominently lobed. . . . . *H. bifurcatus*
1. Calyx lobes lacking marginal costae, lacking calyx nectaries (or if present in sect. *Azanzae*, the involucel gamophyllus and the bracts not bifurcate).
   6. Stipules prominent (15-26 × 7-10 mm), enclosing the developing shoot, deciduous; involucel gamophyllus, 8 to 10-toothed or -lobed, shorter than calyx; calyx lobes with inconspicuous nectaries on midribs; corolla 5-12 cm long, bright yellow, fading orange or red; leaves coriaceous, discolorous, broadly ovate and deeply cordate, subentire; trees or large shrubs; $2n = 80$ (sect. *Azanzae*).
      7. Calyx 1.5-3 cm long, persistent (with the involucel) in fruit; petals 5-8 cm long, yellow fading orange, often drying greenish; capsules 1.5-3 cm long; branches horizontal, a central trunk not forming. . . *H. pernambucensis*
      7. Calyx 3-5 cm long, deciduous (with the involucel) after anthesis; petals 8-12 cm long, fading and drying deep red; capsules 3-4 cm long; trunk straight and erect . . . . *H. elatus*
   6. Stipules smaller, not enclosing the shoot; bracts of involucel distinct; corolla various, if yellow then less than 5 cm long (except yellow-flowered cultivars of *H. rosa-sinensis*); leaves various; shrubs.
      8. Bracts of involucel abruptly expanded distally to a reniform blade; capsules densely hispid, the hairs 2-3 mm long; petals 4-5 cm long; plants of wet habitats; $2n = 40$ (sect. *Trionastrum*). . . . . *H. sororius*
      8. Bracts of involucel subulate, linear, or spatulate, but not as above; capsules glabrous or pubescent, if hispid the hairs < 1.5 mm long; petals various; plants of dry habitats or in cultivation.
         9. Corolla 1.5-4.5 cm long, lavender or purplish; seeds sericeous; plants 0.5-1.5 m tall (sect. *Bombicella*).
            10. Corolla funnelform, 2.5-4.5 cm long; capsules stellate-pubescent; bracts of involucel lanceolate to spatulate. . . . . *H. lavaterioides*
            10. Corolla rotate, 1.5-2.5 cm long; capsules antrorsely strigose; bracts of involucel linear. . . . . *H. phoeniceus*

9. Corolla usually > 5 cm long, of various colors; seeds glabrous, or if pubescent the hairs stiff, not silky; plants 1-3 m tall, only in cultivation.
    11. Leaves minutely stellate-puberulent (especially beneath), cordate, shallowly 3- to 5-lobed, about as long as broad; foliar nectaries absent; flowers white to rose, sometimes double (sect. *Venusti*) ...... *H. mutabilis*
    11. Leaves glabrate, cuneate-elliptic to truncate-ovate, longer than broad; foliar nectaries present; flowers of various colors, sometimes double; androecium more or less exserted (unless flower double) (sect. *Lilibiscus*).
        12. Flowers pendent; petals complexly dissected, reflexed; involucel minute .... *H. rosa-sinensis* var. *schizopetalus*
        12. Flowers more or less erect; petals entire or slightly erose, erect; involucel manifest .... *H. rosa-sinensis*

Hibiscus bifurcatus Cav., Diss. **3:** 146, *t. 51, fig. 1.* 1787, non Blanco (1837).

Type: Brazil, *Commerson s.n.* (holotype, P-JU #12374; IDC 6206. 916: II. 1, photo!.)
Syn.: *Hibiscus bicornis* G. Meyer, Prim. Fl. Esseq. 231. 1818. (Type: not cited, GOET?.)
Hibiscus fluminensis Vell. Conc., fl. Flumin. **7:** *pl. 34.* 1829. (Type: unknown.)

Robust herb or shrub, 2-5 m tall; stems sparsely aculeate, otherwise glabrate. Leaves with petioles aculeate, 4-6 cm long; blades deeply 3-(to 5-)lobed, 6-12 × 7-11 cm, lobes lanceolate, apex acuminate, margin serrate, with small nectary at base of midrib beneath, glabrate (except main veins aculeate beneath). Flowers solitary in axils, with peduncles shorter than or equaling subtending petioles, aculeate and also pubescent; bracts of involucel ca. 10, apically bifurcate, exceeding the calyx, hispid; calyx ca. half-divided, with nectary on midrib of each lobe, more or less hispid; petals lavender, 7-8 cm long. Fruits capsular, 1.5-2 cm long, densely strigose, the hairs appressed and antrorse; seeds numerous, 3.5 mm long, papillate.

GENERAL DISTRIBUTION: Northern South America, Central America (to Belize and Honduras), and the West Indies.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Vincent.

COMMON NAMES: Gombo rivière, gombo de nuit.

Hibiscus cannabinus L., Syst. Nat. ed. 10, **2:** 1149. 1759.

Lectotype: J. Commelijn, Horti Med. Amstelod. **1:** 35, *t. 18.* 1697; see Wijnands, 1983.

Strong herb or subshrub, 1.2 m tall; stems minutely and sparsely aculeate, otherwise glabrate. Leaves with petioles ca. equaling the blades, 4.5-6.5 cm long, sparsely aculeate; blades deeply digitately divided, 6-7 × 8-9 cm, lobes lanceolate to linear, margin serrate, with nectary near base of midrib beneath, glabrate. Flowers solitary, with peduncles short (less than half length of calyx); bracts of involucel ca. 8, simple, shorter than calyx, with urticating hairs; calyx with minute, whitish, arachnoid tomentum and rows of prominent urticating hairs along margin, 5-lobed, the lobes acuminate, each with a prominent nectary on midrib; corolla 4-5 cm long (several times longer than calyx), bright yellow with dark purplish throat; staminal column half length of petals, purple, filaments short, purple, anthers yellow-orange. Fruits densely antrorsely hispid; seeds angularly reniform, 4-5 mm long, minutely appressed-scabridulous.

GENERAL DISTRIBUTION: Widely distributed (generally in cultivation) in tropical and subtropical regions, originating in Africa.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, St. Kitts!, Guadeloupe!, Martinique!.

COMMON NAMES: Pavona encenida, groseille, gombo chanvre.

Hibiscus elatus Sw., Prodr. 102. 1788; Fl. Ind. Occid. **2:** 1218. 1800.

Type: Jamaica, *Swartz s.n.* (holotype, s!).
Syn.: *Paritium elatum* (Sw.) Don, Gen. Hist. **1:** 485. 1831.
Hibiscus tiliaceus L. var. *elatus* (Sw.) Hochr., Annuaire Conserv. Jard. Bot. Genève **4:** 63. 1900.

Tree, 10 or more (-25) m tall; young branches minutely puberulent, with prominent stipule scars more or less encircling the stem at each node. Leaves with petioles 6-9 cm long; blades broadly cordiform to ovate, 17-20 × 8-14 cm, apex short-or long-acuminate, margin entire, with 1 to 3 nectaries near base of principal nerves beneath, markedly discolorous, glabrate above, soft-puberulent beneath; stipules prominent, oblong, deciduous. Flowers usually aggregated near tips of branches; peduncles relatively short and stout; involucel gamophyllous and cup-shaped, 1-1.5 cm long, with 8 to 10 (to 14) triangular teeth; calyx 3-5 cm long, ca. half-divided, yellowish puberulent, deciduous (with the involucel) in fruit; petals 8-12 × 2.5-3 cm, yellow or orange, fading red, drying dark red; staminal column ca. 8 cm long, staminiferous in distal half; styles exceeding androecium, purplish, pubescent, stigmas asymmetrically capitate, purplish. Fruits 3-4 cm long, densely yellowish hirsute, the hairs appressed and antrorse; seeds numerous, ca. 5 mm long, pubescent.

GENERAL DISTRIBUTION: Jamaica and Cuba, but introduced in other parts of the Caribbean, Florida, Hawaii, and probably elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Martinique, St. Lucia!.

COMMON NAMES: Blue mahoe, blue maho, mountain mahoe, cuban bast, majagua.

NOTE: Like many other Malvaceae, *H. elatus* is used as a source of bast fibers. Unlike most other Malvaceae, it is also a significant source of timber. Kimber (Econ. Bot. **24:** 233-240. 1970) describes the history of the introduction of this species into Dominica, Martinique, and Puerto Rico as a plantation timber tree, and interprets the situation as a case of incipient domestication.

Hibiscus furcellatus Desr. *in* Lam., Encycl. **3:** 358. 1789.

Type: Guiane, *Stoupy s.n.* (holotype, P-LA; IDC 6207. 86: II. 3, photo!).
Syn.: *Hibiscus diodon* DC., Prodr. **1:** 449. 1824. (Type: Cayenne, collector unknown (holotype, G-DC; IDC 2562. 197: II. 4, photo!).)
Hibiscus trilobatus Vell. Conc., Fl. Flumin. **7:** *t. 29.* 1829. (Type: unknown.)

Shrub to 2 m tall; stems densely stellate-pubescent. Leaves with petioles 2.5-4 cm long; blades ovate to weakly 3- to 5-lobed, 6-9 × 6-9 cm, base cordate to truncate, margin serrate to subentire, with nectary at base of midrib beneath, somewhat discolorous, densely and minutely stellate-pubescent above and beneath. Flowers solitary, with peduncles shorter than subtending petioles, articulate at base (thus seemingly inarticulate), stellate-pubescent; bracts of involucel 10 to 12, shorter than calyx, apically bifurcate, minutely stellate-pubescent and with a few long simple hairs; calyx 1.5-2.5 cm long, 1/3- to 1/2-divided, with nectary on midrib of each lobe, hispid; petals 5-7 cm long, lavender. Fruits capsular, ca. 2 cm long, densely strigose, the hairs appressed and antrorse; seeds numerous, 3 mm long, glabrous.

GENERAL DISTRIBUTION: Florida, the West Indies, southern Mexico, Central America, and most of South America.

DISTRIBUTION IN LESSER ANTILLES: Dominica!.

Hibiscus lavaterioides Moric. ex Ser., Bull. Bot. **6:** 174. 1830.

Type: Mexico, near Tampico, *Berlandier 127* (lectotype, G; iso-lectotypes, BM!, CAS!, L, UC!, US!).
Syn.: *Hibiscus marmoratus* Lemaire, Ill. Hort. **3:** *t. 82.* 1856 (reproduced with modification in Fl. Serres Jard. Eur. **11:** 175, *t. 1159.* 1856). (Type: loc. cit. *t. 82.*)
Hibiscus longipes Standley, J. Wash. Acad. Sci. **14:** 238. 1924. (Type: El Salvador, Finca San Nicolas, *Choussy 5* (holotype, US!).)

Shrub 1-1.5 m tall; stems stellate-pubescent. Leaves with petioles 3-5 cm long; blades ovate or weakly 3-lobed, 3-9 × 4-8 cm, base cordate, apex acute, margin dentate to subentire, stellate-pubescent beneath (the hairs 3-armed), hairs on upper surface smaller; stipules linear, erect, 4-5 mm long. Flowers solitary with peduncles 2-8 cm long, articulated near middle; bracts of involucel 9, distinct, spatulate, shorter than calyx; calyx 16-19 mm long in flower, to 22 mm in fruit; petals 3-4 cm long, lavender; androecium subequal to corolla, antheriferous only near apex, the filaments sometimes secundly arranged; styles with scattered white hairs, stigmas reddish. Fruits 12-24 mm long, stellate-pubescent; seeds several, 3 mm long, sericeous, the hairs 5 mm long.

GENERAL DISTRIBUTION: Lesser Antilles and Jamaica to Mexico, Guatemala, Belice, El Salvador, and Honduras; sometimes cultivated.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique.

Hibiscus mutabilis L., Sp. Pl. **2:** 694. 1753.

Type: Hort. Upsal. (holotype, LINN 875.20, as microfiche!; isotype, S, IDC 5075. 289: I. 1, photo!).

Syn.: *Hibiscus sinensis* Miller, Gard. Dict. ed. 8. no. 2. 1768, nom. illegit. for *Hibiscus mutabilis* L.

Hibiscus immutabilis Dehnh., Mem. Sop. Alc. Plante Nouv. 4. 1836. (Type: unknown.)

Shrubs to 3 m tall; stems stellate-pubescent with glandular hairs intermingled. Leaves with petioles 3-10 cm long; blades palmately 5- to 7-lobed, 7-13 × 9-17 cm, lobes shallow and triangular, base cordate, apex acute to acuminate, margin serrate-crenate, somewhat discolorous, minutely stellate-puberulent beneath, sparsely so above. Flowers solitary or often aggregated into few-flowered inflorescences, with peduncles articulated above the middle; bracts of involucel 8 to 10, narrowly linear-lanceolate, shorter than calyx; calyx 2.5-3 cm long, more than half-divided, stellate-puberulent and somewhat glandular; petals 4-5 cm long, white fading pink, the flowers sometimes double by petaloidy of the stamens. Fruits subspherical, ca. 2 cm long, hispid, internally pilose on suture margin; seeds numerous, ca. 2 mm long, patently hirsute on half away from hilum with hairs 2 mm long, the other half glabrous.

GENERAL DISTRIBUTION: Southern China, now widely dispersed in cultivation in tropical, subtropical, and sometimes temperate regions.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe! (cult.), Martinique (cult.), Barbados.

COMMON NAMES: Confederate rose, cotton rose, caractère des dames, caractère des femmes, caractère des hommes, maravilla, changeable rose.

Hibiscus pernambucensis Arruda, Diss. Pl. Brazil 44. 1810.

Type: Unknown.

Syn.: *Hibiscus pernambucensis* Bertol., Exc. Re Bot. 13. 1820, nom. illegit. based on *Hibiscus pernambucensis* Arruda ?

Hibiscus arboreus Ham., Prodr. Pl. Ind. Occid. 49. 1825. (Type: Guadeloupe, collector uncertain but probably *Hamilton s.n.* (holotype, herb. Desvaux, presumably at P).)

Paritium pernambucense (Bertol.) Don, Gen. Hist. **1:** 485. 1831.

Hibiscus tiliaceus L. var. *pernambucensis* (Bertol.) I. M. Johnston, Sargentia **8:** 196. 1949.

Hibiscus tiliaceus L. ssp. *pernambucensis* (Arruda) Castell., Sellowia **19:** 50. 1967.

Shrubs or trees, 1-6 m tall, minutely stellate-pubescent to glabrate. Leaves with petioles 6-9 cm long; blades broadly ovate, 10-15 × 11-13, base deeply cordate, apex acute, margin entire or minutely denticulate, coriaceous, with 1 to 5 nectaries at base of principal veins beneath, markedly discolorous, soft-puberulous beneath; stipules prominent, more or less oblong, 1.5-2.5 cm long, to 1 cm broad, enclosing bud, deciduous. Flowers solitary, usually congested at tips of branches, with peduncles usually 0.5-3 cm long, stellate-pubescent; involucel gamophyllous, 8- to 10-toothed, ca. half length of calyx, the teeth lanceolate, 6-10 mm long; calyx ca. 2.5 cm long, more than half-divided with nectary on midrib of each lobe; petals bright yellow fading orange; staminal column ca. 3 cm long, staminiferous throughout. Fruits ca. 2 cm long, antrorsely pubescent; seeds 4 mm long, minutely papillate.

GENERAL DISTRIBUTION: Widely distributed in the tropics and subtropics of the New World, in coastal habitats, often in mangrove associations.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts, Guadeloupe, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines, Grenada!, Barbados.

COMMON NAMES: Seaside mahoe, mahoe doux, mahaut, bois flot, bois de liège, mahot franc, mohot-gombo, rope mangrove, moho gonbo, maho mang.

NOTES: Several unresolved taxonomic problems concern the plants included in *Hibiscus* sect. *Azanzae* (sometimes segregated as the genus *Paritium*), which is clearly a natural taxon at whatever rank. Certain of the constituent taxa are generally accepted in specific rank (e.g., *H. elatus* and *H. macrophyllus*), whereas others are variously treated in specific, subspecific, or varietal rank, or even that of forma, frequently as constituents of a broadly conceived *H. tiliaceus.* Many of these taxa are from the Old World and need not concern us here, but a distinction may be made, and is here, between *H. tiliaceus* and *H. pernambucensis.* Commonly these two taxa are synonymized, but they differ (apparently consistently) by a series of characters sufficient to regard them as differing in specific rank. A. Castellanos (Sellowia **19:** 41-53. 1967), considers *H. tiliaceus* to be an Old World taxon and *H. pernambucensis* to be from the New World and I agree with him although more study is needed. This situation has been complicated to some extent, as the Old World species has been introduced into the New World in isolated localities as a shade tree. However, only specimens of *H. pernambucensis* have been seen from the Lesser Antilles.

A second (nomenclatural) problem arises with *H. pernambucensis.* The name was published by Arruda in 1810 and again by Bertoloni in 1820. Neither type is known, and it is probable that Bertoloni was simply using Arruda's name rather than proposing a new one. Subsequent combinations, however, cite Bertoloni. According to Sprengel (Syst. Veg. **3:** 107. 1826), *Hibiscus abutiloides* Willd. is the same as *H. pernambucensis* Bertoloni, and indeed, Bertoloni states that they are very similar. Willdenow's name was published in 1809 and therefore would take precedence over that of Arruda, but unfortunately the type of H. abutiloides is not extant in the Willdenow herbarium and the original description is too general to resolve the question. Therefore, *H. pernambucensis* Arruda is used.

Yet another problem is alluded to by Kimber (Econ. Bot. **24:** 233-240. 1970) and others, who indicate some apparent hybridization occurring between the introduced mountain mahoe (*H. elatus*) and the seaside mahoe in the

Lesser Antilles, resulting in individual specimens that may be difficult to determine because of intermediacy or recombination of characters.

Hibiscus phoeniceus Jacq., Hort. Bot. Vindob. **3:** 11, *t. 14.* 1776.
FIGURE 90.

Type: *Jacquin s.n.* (holotype, BM!).
Syn.: *Bombix phoenicea* (Jacq.) Medikus, Malvenfam. 44. 1787.
Hibiscus betulifolius Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 227 (ed. folio), 292 (ed. quarto). 1822. (Type: prope Cumaná, *Humboldt & Bonpland 1125* (holotype, P, IDC 6209. 132: I. 4, photo!; isotype, B-W #12872, IDC 7440. 922: II. 6, photo!).)
Hibiscus cavanillesianus Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 226 (ed. folio), 290 (ed. quarto). 1822. (Type: in ripa fluminis Amazonam, Prope Tomependa, *Humboldt & Bonpland 3609* (holotype, P; IDC 6209. 131: III. 7, photo!).)
Hibiscus columbinus DC., Prodr. **1:** 452. 1824. (Type: Icones Florae Mexicanae s.n.! (Torner Collection acc. no. 6331. 1697, Hunt Institute).)
Hibiscus sylvaticus Benth., Pl. Hartw. 114. 1843. (Type: Ecuador, prope Guayaquil, *Hartweg 639* (holotype, K!; isotype, K!).)
Hibiscus neglectus C. Wright *in* Sauvalle, Anales Acad. Ci. Méd. Habana **5:** 240. 1868. (Type: Cuba, al lado del río en Santa Catalina Guantánamo, *Wright s.n.* (K!).)
Bombicella betulina Bello, Anales Soc. Esp. Hist. Nat. **10:** 241. 1881, based on *Hibiscus betulifolius* Kunth.
Bombicella phoenicea (Jacq.) Bello, Anales Soc. Esp. Hist. Nat. **10:** 241. 1881.

Shrub 1-1.5 m tall; stems green, sparsely stellate-pubescent to glabrate. Leaves with petioles 0.6-1 cm long; blades lanceolate to ovate, 3-5 × 0.7-2.5 cm, base subcordate to truncate, apex acute, margin serrate-crenate, sparsely stellate-pubescent to glabrate. Flowers solitary with peduncles 0.5-6 cm long; bracts of involucel 8 or 9, equaling or exceeding the calyx, linear, persistent; calyx 6-10 mm long, ca. 2/3-divided, the lobes acute or acuminate, margin ciliate; corolla rotate, the petals 1-2 cm long, lavender (sometimes white); staminal column included, glabrous, pallid, anthers yellowish; styles slender, glabrous, stigmas purplish. Capsules fully dehiscent, 9-13 mm long, antrorsely strigose; seeds 2.5 mm long, densely sericeous, the hairs to 4 mm long, brownish.

GENERAL DISTRIBUTION: West Indies and Mexico to northern South America, including Ecuador and Peru.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua, St. Kitts, Guadeloupe!, Martinique!, St. Vincent.

COMMON NAME: Petit hibiscus.

NOTES: This species is sometimes referred to as *Hibiscus brasiliensis* L. Typification of the Linnaean name is problematic, and the next oldest name, *H. phoeniceus,* is the correct one. It is introduced and naturalized in the Lesser Antilles according to Questel (1951).

Hibiscus radiatus Cav., Diss. **3:** 150, *t. 54, fig. 2.* 1787.

Type: Cultivated in Paris from seeds collected by Banks, *Cavanilles s.n.* (holotype, P-JU #12373, IDC 6206. 916: I. 7, photo!; isotype?, MA).

Herb or subshrub, erect or decumbent; stems sometimes with urticating hairs, glabrescent. Leaves with petioles 9-11 cm long; blades deeply 3- to 5-parted, 9 × 13 cm, base truncate, the lobes lanceolate, apex acute, margin coarsely serrate, without a foliar nectary, glabrous. Flowers solitary with peduncles 2-5 mm long; bracts of involucel 8 to 10, distinct, linear, 12-15 mm long, spreading in flower to reflexed in fruit, bifurcate (rarely simple), hispid; calyx 1.5-2.5 cm long, 5-lobed, accrescent, midrib and marginal nerves prominent, with stiff urticating hairs on the nerves; corolla 4-6 cm long, red (sometimes yellow) with a dark throat. Fruits ovoid, shorter than calyx, hispid; seeds angular-reniform, 4 mm long, scabridulous.

GENERAL DISTRIBUTION: Southeast Asia.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Lucia! (introduced in cultivation).

COMMON NAMES: Gombo-chanvre, groseille, kenaf.

NOTE: Citations of *Hibiscus surattensis* L., as cultivated in the Lesser Antilles, by Fournet (1978) and Duss (1897) are evidently references to this species.

Hibiscus rosa-sinensis L. var. **rosa-sinensis**, Sp. Pl. **2:** 694. 1753.

Lectotype: Herb. Hermann, vol. **3:** 4, *Linn no. 260* (BM), designated by Borssum-Waalkes, Blumea **14:** 72. 1966.

Syn.: *Hibiscus festalis* Salisb., Prodr. Stirp. Chap. Allerton 383. 1796, nom. illegit. for *Hibiscus rosa-sinensis* L.

Hibiscus boryanus DC., Prodr. **1:** 446. 1824. (Type: St. Vincent, *Bory s.n.* (holotype, G-DC; IDC 2562. 196: II. 5, photo!).)

Shrubs 1-3(-4) m tall, sparsely puberulent to glabrate. Leaves with petioles 2-6 cm long; blades ovate or lanceolate, 8-15 × 6-9 cm, base truncate or cuneate, apex acute, margin serrate, concolorous, sparsely puberulent to glabrate. Flowers solitary with peduncles exceeding subtending petioles, articulated above the middle; bracts of involucel ca. 8, narrowly lanceolate, ca. half length of calyx; calyx 2-4 cm long, more than half-divided, the lobes lance-triangular; petals usually 6-10 cm long, the flowers single or double in a variety of colors (commonly red); androecium more or less exserted, filaments often 5-10 mm long. Fruits seldom produced.

GENERAL DISTRIBUTION: Unknown in the wild, but pantropical and subtropical in cultivation. Indeed one of the showiest and best known ornamental shrubs, sometimes grown as a pot plant in temperate zones.

DISTRIBUTION IN LESSER ANTILLES: Anguilla, St. Martin, Barbuda, Antigua!, Saba, St. Eustatius, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Barbados!.

COMMON NAMES: Chinese hibiscus, rose de cayenne, amapola, candelada, Chinese rose, pavona, shoe black, red hibiscus, garden hibiscus, hibiscus.

NOTES: This plant was thought by Linnaeus to have come from China, and most subsequent authors have uncritically accepted this view. However, van der Pijl (Ann. Jard. Bot. Buitenzorg **48:** 2-26. 1937) and Carter (Amer. Antiquity **20:** 176-177. 1954) have noted that the flower is adapted for hummingbird pollination and that hummingbirds are American, not Asiatic. This argues for an American origin of the species. On the other hand, a consideration of the geographical distribution of the other species of *Hibiscus* sect. *Lilibiscus* (from Hawaii and other Pacific islands to southeast Asia) does not support an American origin. In view of the immense diversity of the plant in cultivation and of its inability to establish itself in the wild, it is likely that it has been domesticated for a very long time. It is also probable that its genetic history is complicated, involving complex hybridization, as is suggested by the wide range of chromosome numbers and high frequency of univalents and multivalent associations that have been reported (Caryologia **23:** 19-27. 1970).

A variegated sport of *H. rosa-sinensis* (*H. cooperi* Hort.) does occur in the Lesser Antilles. This taxon is treated as *H. rosa-sinensis* L. cv. Cooperi in Hortus Third, which is an appropriate disposition.

Hibiscus rosa-sinensis L. var. **schizopetalus** Masters, Gard. Chron. n.s. **12:** 272, *t. 45.* 1879.

Syntypes: Zanzibar, Mombasa, *Kirk s.n.*; Kilwa, in 1877, *Kirk s.n.*; Lindi, in 1877, *Kirk s.n.* (all presumably at BM or K). Borssum-Waalkes (1966) cites Masters' plate as lectotype, but since several syntypes were cited, one of them should be chosen as lectotype, especially if one can be shown to be the basis for the plate.

Syn.: *Hibiscus schizopetalus* (Masters) Hook. f., Bot. Mag. **106:** *t. 6524.* 1880.

Shrub to 3 m tall, glabrate. Leaves with petioles 1-2 cm long; blades lanceolate, 4-5 × 2.5-3 cm, apex acute, margin serrate, glabrate. Flowers solitary, pendent, with peduncles slender, exceeding the subtending leaves, articulated at or above the middle; bracts of involucel reduced to subulate teeth ca. 1 mm long; calyx cylindrical, 1.5-2 cm long; petals reflexed, 5-6 cm long, complexly dissected, the ultimate segments obovate, obtuse, usually red or pink; androecium exserted, filaments 5-8 mm long; styles slender, exceeding androecium. Fruits seldom produced.

GENERAL DISTRIBUTION: Native to East Africa, pantropical in cultivation.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Saba, St. Eustatius, Dominica!.

NOTE: Because it intergrades with *Hibiscus rosa-sinensis*, with many intermediate forms propagated in cultivation, I prefer to distinguish these two ornamentals in varietal rather than specific rank.

Hibiscus sabdariffa L., Sp. Pl. **2:** 695. 1753.

Type: Not resolved; the problem of typification of this species is discussed by Borssum-Waalkes (Blumea **14:** 64. 1966).
Syn.: *Hibiscus fraternus* L., Pl. Surin. 12. 1775. (Type: Surinam, *Dahlberg s.n.* (holotype, LINN 875.36, as microfiche; isotype, S, IDC 5075. 289: I. 5, photo!).)

Subshrub 1-3 m tall, glabrate. Leaves with petioles 3-4 cm long; blades ovate to deeply digitately parted, 9-15 × 8-14 cm, base truncate to cuneate, margin serrate, with nectary at base of midrib beneath, glabrate. Flowers solitary with peduncles shorter than subtending petioles, articulated at or near base; bracts of involucel ca. 8, lanceolate, basally connate, shorter than calyx; calyx 1.5-3 cm long, accrescent and fleshy in fruit, with nectary on midrib of each lobe, bright red, somewhat hispid to glabrate; petals yellow with maroon basal spot. Fruits capsular, 2 cm long, antrorsely hispid; seeds numerous, 4 mm long, minutely scabridulous.

GENERAL DISTRIBUTION: Pantropical in cultivation, probably of African origin (cf. Econ. Bot. **18:** 80-91. 1964).

DISTRIBUTION IN LESSER ANTILLES: St. Eustatius, St. Kitts!, Guadeloupe, Martinique, St. Vincent!, Barbados.

COMMON NAMES: Jamaica sorrel, red sorrel, sorrel, roselle, oseille de Guinée, groseille de Guinée, grand oseille, groseille, vina, lo zel, lozèy.

NOTE: This is a very versatile plant in cultivation: "The seeds are eaten roasted or ground into meal; the leaves and shoots are eaten, raw or cooked, as a sour-flavored vegetable or condiment; the fleshy fruiting calyces are used like cranberries in jellies and confections; or the juice is expressed and made into fresh or fermented drink. Various parts of the plant are used as medicines for men and animals; and fiber types have achieved importance in world commerce as a jute substitute." (Wilson & Menzel, Econ. Bot. **18:** 82. 1964.)

Hibiscus sororius L., Pl. Surin. 12. 1775.

Type: Surinam, *Dahlberg s.n.* (holotype, LINN 875.7, as microfiche!; isotype, S, IDC 5075. 290: I. 7, photo!).

Shrub or subshrub ca. 1 m tall; stems with minute, yellowish, stellate hairs, glabrate in age. Leaves with petioles 4-5 cm long; blades suborbiculate to ovate, 4.5-12 × 6-13 cm, base deeply cordate, apex obtuse to acute, margin crenate to subentire, discolorous, minutely stellate-pubescent above and beneath. Flowers solitary with peduncles 1.5-6 cm long (exceeding subtending petioles), articulated near middle, with pubescence like that of stem; bracts of involucel 8 or 9, distinct, stipitate and abruptly dilated distally to form a somewhat reniform blade, yellowish stellate-pubescent; calyx two or more times length of involucel, ca. half-divided, accrescent and inflated in fruit, yellowish stellate-pubescent; petals 4-5 cm long, lavender. Fruits subspherical, 1.5 cm long, densely hispid with hairs 2-3 mm long; seeds 2 mm long, minutely scabridulous.

GENERAL DISTRIBUTION: West Indies, southern Mexico, and Central America south to Argentina.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!.

COMMON NAMES: Liane de framboisin, gombo bâtard.

NOTE: This species occurs primarily in marshy habitats.

MALACHRA L.

Malachra L., Mant. Pl. **1:** 13. 1767; Syst. Nat. ed. 12, **2:** 485. 1767.

Herbs or subshrubs, sometimes puberulent, more commonly hispid, often with urticating hairs. Leaves petiolate; blades suborbiculate to broadly ovate, angular, palmately lobed to digitately divided, base truncate, apex acute to obtuse, margin serrate, usually pubescent. Flowers in condensed, bracteate, headlike racemes, the "heads" axillary or terminal; specialized bracts subtending the inflorescences broadly cordate-ovate, sessile, often with prominent nerves alternating with white intercostal tissue basally, green and foliaceous distally; involucel usually absent; calyx small, 5-lobed; corolla often inconspicuous, white, yellow, or lavender. Fruit a schizocarp, glabrous; mericarps 5, smooth, 1-seeded; seeds glabrous.

LECTOTYPE: *Malachra* capitata (L.) L., based on *Sida capitata* L.; see Gürke, Bot. Jahrb. Syst. **16:** 347. 1892.

A neotropical genus of perhaps 8 to 10 species, occurring in the Old World probably as a result of relatively recent introduction.

KEY TO THE SPECIES

1. Corolla white (rarely lavender); calyx 4-5 mm long; leaves more or less palmately lobed, the lobes more or less linear, the sinuses relatively narrow; stems hispid, the hairs 2-4 (-7) mm long . . . . *M. fasciata*
1. Corolla yellow; calyx 5-8 mm long; leaves unlobed or angulate, if lobed the lobes obovate, the sinuses broadly rounded; stem hairs to 1.5(-2) mm long.
    2. Outer bracts acuminate; "heads" essentially sessile or on peduncles shorter than subtending petioles; stems hispid, the hairs 1(-2) mm long; leaves unlobed or somewhat angular . . . . *M. alceifolia*
    2. Outer bracts rounded to acute; "heads" usually manifestly pedunculate; stems stellate-pubescent, sometimes also hispid; leaves unlobed or palmately lobed, the lobes basally constricted, the sinuses broadly rounded . . . . *M. capitata*

Malachra alceifolia Jacq., Collectanea **2:** 350. 1789.

Type: ex herb. Jacquin (holotype, W, as photo F-32649!, right-hand specimen).
Syn.: *Malachra rotundifolia* Schrank, Pl. Rar. Hort. Monac. *t. 56.* 1820. (Type: in hort., *Schrank s.n.* (M).)
Malachra conglomerata Turcz., Bull. Soc. Imp. Naturalistes Moscou **31:** 205. 1858. (Type: in prov. Ocaña, Novae Grenadae, *Schlim 176* (holotype, KW!; isotypes, BR!, K!).)

Malachra alceifolia Jacq. var. *rotundifolia* (Schrank) Gürke, Bot. Jahrb. Syst. **16:** 351. 1892.
Malachra alceifolia Jacq. var. *conglomerata* (Turcz.) Hochr., Annuaire Conserv. Jard. Bot. Genève **20:** 149. 1917.

Herbs or subshrubs 0.5-1.5 m tall; stems usually hispid, sometimes very sparsely so. Leaves with petioles 4-5 cm long; blades orbiculate to ovate, 3- to 5-angled or slightly lobulate, 6-8 × 4-8 cm, base truncate, apex acute to obtuse, margin serrate, sparsely hispid to glabrate. Inflorescences compact, axillary, few-flowered glomerules, short-pedunculate to sessile; specialized floral bracts several, nearly sessile, base cordate, apex acuminate, often with white reticulate tissue at base, often hispid; calyx deeply 5-lobed, 6-8 mm long, hispid; petals yellow, 1-1.5 cm long; staminal column about equaling corolla. Fruits ca. 3 mm long, brownish with reticulate veins, minutely puberulent; seeds solitary, glabrous.

GENERAL DISTRIBUTION: West Indies and southern Mexico, Central America, and northern South America, often in disturbed ground.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada, Barbados.

COMMON NAMES: Gombo savane, gombo bâtard, gumbo zombie, malva de caballo, bastard okra, wild okra, wild hemp.

Malachra capitata (L.) L., Syst. Nat. ed. 12, **2:** 458. 1767. FIGURE 91.

Basionym: *Sida capitata* L., Sp. Pl. **2:** 685. 1753.
Type: Hort. Upsal. (holotype, LINN 867.1, as microfiche!; isotype, S, IDC 5075. 284: II. 6, photo!).
Syn.: *Malachra palmata* Moench, Methodus 615. 1794. (Type: Cav., Diss. **2:** *t. 23, fig. 2.* 1786.)

Herb or subshrub to 1.5 m tall; stems densely stellate-pubescent, sometimes also with longer simple hairs, especially on young growth. Leaves with petioles 3-6 cm long; blades ovate, lyrate, or 3- to 5-lobed, 4-9 × 6-8 cm, lobes constricted basally, with broadly rounded sinuses, base truncate to subcordate, apex acute or obtuse, margin crenate-serrate, sparsely to moderately stellate-pubescent. Inflorescences capitulate, terminating axillary peduncles that usually exceed subtending petioles; specialized floral bracts 2 or more, sessile, base deeply cordate, apex rounded to acute, margin entire, with prominent white markings at base, often hispid; calyx deeply 5-lobed, 6-8 mm long, hispid; petals yellow, 7-10 mm long. Fruits ca. 3 mm long, brownish with reticulate veins, glabrous; seeds solitary, glabrous.

GENERAL DISTRIBUTION: Nicaragua, Honduras, Guatemala, Mexico, southern Texas, the West Indies, and northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts!, Antigua, St. Kitts, Montserrat!, Guadeloupe!, Marie Galante!, Dominica, Martinique!, St. Lucia, St. Vincent, the Grenadines!, Grenada, Barbados.

COMMON NAMES: Gombo savane, gombo bâtard.

Malachra fasciata Jacq., Collectanea **2:** 352. 1789.

Type: ex herb. Jacquin (holotype, W, as photo F-32649!, left-hand specimen.
Syn.: *Malachra humilis* Benth., Pl. Hartw. 113. 1843. (Type: Ecuador, prope Guayaquil, *Hartweg 633* (holotype, K!; isotype, OXF!).)
Malachra kegeliana Garcke, Linnaea **22:** 52. 1849. (Type: Surinam, prope Paramaribo, *Kegel 867* (GOET-3 sheets!).)
Malachra squarrosa Klotzsch *in* R. M. Schomb., Reis. Br.-Guiana **3:** 1171. 1849, nom. nud. (Type: British Guiana, an den Ufern der Savannenflusse, *Schomburgk 1597*, specimen unknown).
Malachra lineariloba Turcz., Bull. Soc. Imp. Naturalistes Moscou **31:** 206. 1858. (Type: Philippines, *Cuming 1111* (isotypes, BM, G, K!, L, P, herb. Paul Fryxell!).)
Malachra fasciata Jacq. var. *lineariloba* (Turcz.) Gürke, Bot. Jahrb. Syst. **16:** 355. 1892.
Malachra alceifolia Jacq. var. *fasciata* (Jacq.) Robyns, Ann. Missouri Bot. Gard. **52:** 527. 1966.

Herb or subshrub 0.5-1(-2) m tall; stems hispid with pungent hairs 2-4(-7) mm long. Leaves with petioles 4-5 cm long; blades ovate, usually lobed or deeply parted, 10-15 × 8-11 cm, lobes not constricted basally (ovate if shallowly lobed, more or less linear-lanceolate if deeply parted), the sinuses more or less acute, base truncate, apex acute, margin crenate-serrate, sparsely hispid, the hairs often appressed. Inflorescences axillary, short-pedunculate, few-flowered heads; specialized floral bracts 2 or more, lance-ovate (longer than wide), acute, prominently costate basally with at least some whitish intercostal tissue, prominently hispid; calyx deeply 5-lobed, 4-5 mm long, with whitish intercostal areas; petals white, 6-8 mm long. Fruits ca. 3 mm long, brownish with reticulate veins, minutely puberulent to glabrous; seeds solitary, glabrous.

GENERAL DISTRIBUTION: Mexico and the West Indies, Central and South America, and adventively in parts of the Old World.

DISTRIBUTION IN LESSER ANTILLES: St. Barts, Antigua!, Montserrat!, Guadeloupe!, Martinique!, St. Lucia!, Grenada!, Barbados.

COMMON NAMES: Grande guimauve, gombo bâtard.

MALVASTRUM A. Gray

Malvastrum A. Gray, Mem. Amer. Acad. Arts. n.s. **4:** 21. 1849, nom. cons.

Perennial shrubs or subshrubs (sometimes annual), erect, with patent or appressed stellate pubescence. Leaves ovate or lanceolate, usually simple, crenate or dentate. Flowers axillary and solitary, or aggregated in apical spikes or racemes; involucel of 3 filiform or spatulate bractlets; calyx 5-lobed; corolla yellowish or orangish, rarely with red center; androecium included; stigmas capitate. Fruits oblate; mericarps 7 to 18, indehiscent, horseshoe-shaped, with prominent ventral notch, sometimes 2- or 3-cuspidate, 1-seeded, setose or pubescent; seeds glabrous.

LECTOTYPE: *Malvastrum wrightii* A. Gray, typ. cons.

A genus of 14 species, principally American, two of which are adventives in various parts of the Old World as well.

KEY TO THE SPECIES

1. Hairs of upper leaf surface simple; flowers all axillary, scattered along branches, manifestly pedicellate, the pedicels 2-10 mm long; stem pubescence of appressed stellate hairs with 4 radii, 2 antrorse and 2 retrorse; mericarps with 3 prominent cusps; staminal column glabrous .... *M. coromandelianum*
1. Hairs of upper leaf surface stellate; flowers sometimes solitary but usually in terminal spicate inflorescences, sessile or subsessile; stem pubescence of stellate hairs with 3 to 12, more or less spreading radii; mericarps with rounded dorsal wall lacking cusp (or these obscure); staminal column pubescent.
    2. Stem hairs mostly 3- to 5-rayed, appressed; inflorescence a spike usually no more than 2 cm long; flowers with pedicels ca. 1 mm long; lateral walls of mericarp more or less pubescent .... *M. corchorifolium*
    2. Stem hairs mostly 5- to 12-rayed, tufted; inflorescence a dense spike usually more than 3 cm long; flowers sessile; lateral walls of mericarp nearly glabrous .... *M. americanum*

Malvastrum americanum (L.) Torrey *in* Emory, Rep. U.S. Mex. Bound. **2:** 38. 1859.

Basionym: *Malva americana* L., Sp. Pl. **2:** 687. 1753.
Type: Hortus Leydensis, *A. van Royen s.n.* (lectotype, L), designated by Borssum-Waalkes, Blumea **14:** 154-155. 1966.

Herbs, subshrubs, or shrubs 0.5-1.5 m tall, stellate-pubescent. Leaves with petioles 1-6 cm long; blades ovate or weakly lobulate, 2-9 × 1-8 cm, base truncate, apex acute, margin serrate, minutely stellate-pubescent above and beneath. Inflorescences dense spikes, terminal or terminating lateral axillary branches. Flowers sessile, bracteate, subtended by involucel of 3 linear bractlets; calyx 5-6 mm long (accrescent to 6-10 mm in fruit), hirsute; petals 8-9 mm long, yellow-orange; androecium yellowish, the column stellate-pubescent. Fruits oblate, 5-6 mm in diameter; mericarps 11 to 14, apically setose, dorsally smooth and glabrous, laterally ribbed, without cusps; seeds 1.5 mm long.

GENERAL DISTRIBUTION: Southern United States (Texas and Florida), West Indies, Mexico, Central America, and South America (as far as northern Argentina); also in Australia, India, and elsewhere in the Old World.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda, Antigua!, Saba, St. Eustatius, St. Kitts, Montserrat, Guadeloupe!, La Désirade, Marie Galante, Les Saintes, Dominica, Martinique, St. Lucia!, St. Vincent, the Grenadines!, Grenada, Barbados.

COMMON NAMES: Mauve d'Amérique, mauve savane, marie l'hôpital.

Malvastrum corchorifolium (Desr.) Britton ex Small, Fl. Miami 119. 1913. FIGURE 92.

Basionym: *Malva corchorifolium* Desr. *in* Lam., Encycl. **3:** 755. 1792, based on *Malva scoparia* Jacq., Collectanea **1:** 59. 1787; Icon. Pl. Rar. **1:** 14, *t. 139.* 1787 (non L'Hér., 1786).

Lectotype: Loc. cit. *t. 139*; designated by Hill, Rhodora **84:** 348. 1982.

Syn.: *Malvastrum rugelii* S. Watson, Proc. Amer. Acad. Arts **17:** 367. 1882. (Type: Florida, Manatee County, mouth of the Manatee River, 1845, *Rugel 90* (holotype, GH!; isotypes, BM!, herb. Paul Fryxell!, UC!, US!).)

Subshrubs; stems with appressed hairs, 3- to 5-rayed. Leaves with petioles 1-4 cm long; blades ovate, 2-3 × 1-1.5 cm, margin dentate, upper surface with stellate hairs, 4- or 5-rayed. Flowers solitary in axils of upper leaves, subsessile, becoming congested and spicate on branch tips, the individual flowers bracteate, subtended by involucel of 3 lanceolate bractlets; calyx 5-6 mm long (accrescent to 7-11 mm in fruit), moderately pubescent; corolla exceeding calyx, yellow; androecium yellowish, the column stellate-pubescent. Fruits oblate, 5-6.5 mm in diameter; mericarps 11 to 13, apically setose, laterally pubescent, with cusps greatly suppressed.

GENERAL DISTRIBUTION: Florida, West Indies, and southern Mexico to Nicaragua.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts!, Antigua, Guadeloupe, Martinique!, the Grenadines!, Grenada!, Barbados.

COMMON NAME: Herbe à balais (Haiti).

NOTE: This species is more or less confined to calcareous soils. It is interpreted as an amphidiploid derivative of *M. americanum* and *M. coromandelianum* (Hill, 1982) and tends to be intermediate between these two species in most characters.

Malvastrum coromandelianum (L.) Garcke, Bonplandia **5:** 295. 1857.

Basionym: *Malva coromandeliana* L., Sp. Pl. **2:** 687. 1753.

Type: Hort. Upsal. (lectotype, LINN 870.3, as microfiche!; isolectotype, S, IDC 5075. 286: III. 1, photo!); designated by Borssum-Waalkes, Blumea **14:** 152-153. 1966.

Syn.: *Malva tricuspidata* R. Brown ex Aiton f., Hortus Kew **4:** 210. 1812, an illegitimate, superfluous name for *Malva coromandeliana* L.

Malva lindheimeriana Scheele, Linnaea **21:** 470. 1848. (Type: Texas, near New Braunfels, *Lindheimer 241* (lectotype, GOET!; isolectotypes, GH!, K!, MO!, OXF, PH!, US!); designated by Hill, Rhodora **84:** 328. 1982.) NOTE: the type was distributed by Asa Gray under the number 351.

Malvastrum lindheimerianum (Scheele) Walp., Ann. Bot. Syst. **2:** 153. 1851.

Malvastrum tricuspidatum (Aiton f.) A. Gray, Pl. Wright **1:** 16. 1852.

Subshrub (or sometimes an annual herb); stems with appressed hairs, 4-rayed, the rays 2 antrorse and 2 retrorse. Leaves with petioles 1-3 cm long;

blades ovate or lanceolate, 2-6 × 1-4 cm, margin dentate, upper surface with simple hairs. Flowers axillary, usually solitary on short pedicels (ca. equal to the calyx); bractlets of involucel 3, linear or narrowly spatulate, shorter than calyx; calyx 5-7 mm long (accrescent to 8-11 mm in fruit), hirsute; corolla exceeding the calyx, yellow; androecium yellowish, the column glabrous. Fruits oblate, 6-7 mm in diameter; mericarps 10 to 12, setose, 3-cusped (one cusp apical, two on dorsal wall).

GENERAL DISTRIBUTION: From Texas and Florida to northern Argentina; also introduced in various parts of the Old World and now a more or less pantropical weed.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts, Antigua!, St. Eustatius!, Montserrat!, Guadeloupe!, La Désirade!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines, Grenada!, Barbados!.

COMMON NAMES: Pain doux, balai-deux-heures, soap bush, balai savane, (crumpled-leaved) broomweed.

MALVAVISCUS Fabr.

Malvaviscus Fabr., Enum. 155. 1759.

Syn.: *Achania* Sw., Prodr. 102. 1788. Type: *Achania pilosa* Sw.

Branching shrubs, sometimes scandent, rarely small trees, pubescent or glabrous. Leaves petiolate; blades elliptic, ovate, or 3- to 5-lobed, base truncate or cordate. Flowers solitary in axils or sometimes in apical cymelike groups; bractlets of involucel linear, lanceolate, or spatulate, usually 8 or 9; calyx gamosepalous, campanulate or tubular, 5-lobed; petals forming a tubular corolla, articulate at base, red (rarely white); androecium generally exserted, the staminal column with 5 apical teeth, filaments short, somewhat retrorse; styles 10, stigmas capitate. Fruit a fleshy schizocarp or berry, 5-carpellate, each 1-seeded, usually red.

TYPE: *Malvaviscus arboreus* Cav., based on *Hibiscus malvaviscus* L.

The genus is a difficult one, differently interpreted by different authors, and is seriously in need of a modern revision (but cf. Schery, Ann. Missouri Bot. Gard. **29:** 183-236. 1942). It occurs principally from central Texas to northern South America and includes from a few to a dozen species, depending upon interpretation. A few forms have been widely distributed in cultivation for their showy flowers. Few specimens from the Lesser Antilles are known, but two species are to be expected as garden introductions.

NOTE: The generic name is sometimes attributed to Guettard (Hist. Acad. Sci. Mém. **1749:** 403. 1753), but Stafleu and Cowan (Tax. Lit. II, **1:** 1021 (no. 2208). 1976) conclude that this work is pre-Linnaean. The earliest post-Linnaean publication of the name is that of Fabricius cited above (Dandy, Regnum Veg. **51:** 62. 1967).

KEY TO THE SPECIES

Calyx 7-15 mm long; plants densely and evenly stellate-tomentose; corolla 3-3.5 cm long; androecium manifestly exserted; fruits red . . . . *M. arboreus*

Calyx 15-18 mm long; plants sparsely pubescent to glabrate; corolla usually 6 cm long, the flowers manifestly pendent; androecium subequal to corolla or slightly exserted; plants sterile, flowering freely but producing no fruits . . . . *M. penduliflorus*

Malvaviscus arboreus Cav., Diss. **3:** 131, *t. 48, fig. 1.* 1787.

Basionym: *Hibiscus malvaviscus* L., Sp. Pl. **2:** 694. 1753.

Holotype: LINN 875.22, as microfiche! (but see Borssum-Waalkes, Blumea **14:** 132-133. 1966, who designates a specimen in the Clifford Herbarium at BM as a lectotype).

Syn.: *Achania malvaviscus* (L.) Sw., Prodr. 102. 1788.

Achania coccinea Salisb., Prodr. Stirp. Chap. Allerton 385. 1796, based on *Hibiscus malvaviscus* L.

Malvaviscus acapulcensis Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 224 (ed. folio), 288 (ed. quarto). 1822. (Type: Mexico, near Acapulco, *Humboldt & Bonpland s.n.* (holotype, P; IDC 6209. 131: III. 4, photo!).)

Shrub 1.5-2.5 m tall, densely pubescent. Leaves with petioles 3-4 cm long; blades elliptic, ovate, or more or less lobed, 4-7 × 6-7 cm, base truncate or cordate, apex acute or acuminate, margin crenate, densely and softly tomentose, especially beneath. Flowers solitary in axils or grouped apically; pedicels 1-3 cm long; bracts of involucel 8 or 9, lanceolate, subequal to calyx or slightly shorter; calyx tubular, 5-lobed, 10-15 mm long, yellowish; petals 3-3.5 cm long; androecium 4-6 cm long, glabrous, filaments 1-2 mm long, retrorse, anthers few (10 to 25), purplish; styles and stigmas slightly exserted from staminal column, red. Fruits fleshy, 1 cm in diameter, red; mericarps 5, 6 mm high.

GENERAL DISTRIBUTION: Mexico to northern South America; sometimes elsewhere in cultivation.

DISTRIBUTION IN LESSER ANTILLES: Cited by Fournet (1978) as recently introduced; Dominica (fide Nicolson mss.); Barbados (cited by Schery (1942) from Botanical Station, St. Michael, Lodge Hill).

COMMON NAMES: Hibiscus-piment, sleepy mallow.

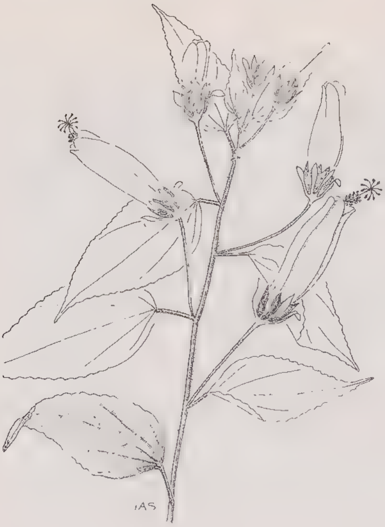
Malvaviscus penduliflorus DC., Prodr. **1:** 445. 1824. FIGURE 93.

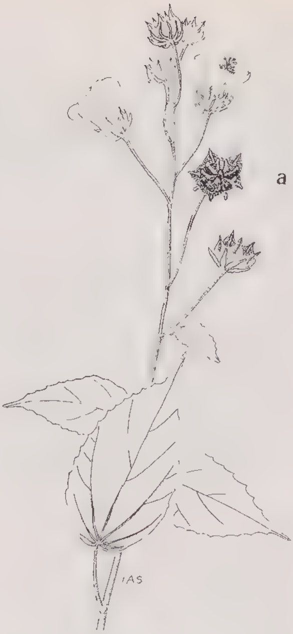
Holotype: Icones Florae Mexicanae 100! (Torner Collection acc. no. 6331. 1712, Hunt Institute).

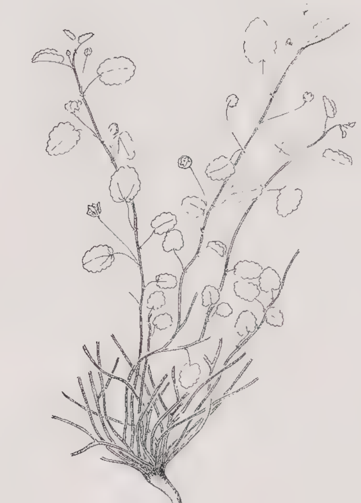
Syn.: *Malvaviscus longifolius* Garcke, Allg. Gartenzeitung **22:** 321. 1854. (Type: in cult. Berlin Bot. Gard. (B, destroyed, as photo F-9427!).)

Malvaviscus arboreus Cav. var. *penduliflorus* (DC.) Schery, Ann. Missouri Bot. Gard. **29:** 233. 1942.

Shrub 1-3 m tall, sparsely pubescent (the hairs recurved and in rows) to glabrate. Leaves with petioles 1-1.5 cm long; blades lanceolate to ovate, 5-8 × 2.5-4 cm, base truncate, apex acute or acuminate, margin crenate-serrate,







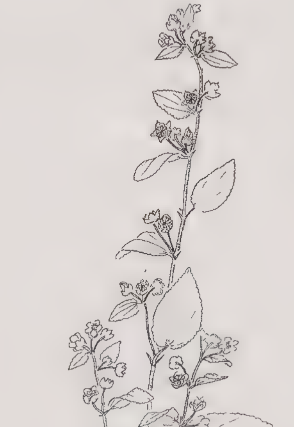


FIGURE 93 (upper left). *Malvaviscus penduliflorus*, × 0.4. FIGURE 94 (upper right). *Pavonia paludicola*, × 0.4; fruit at ''a'' shows open mericarp valves. FIGURE 95 (lower left). *Sida abutifolia*, × 0.4. FIGURE 96 (lower right). *Sidastrum multiflorum*, × 0.4.

glabrate above and beneath. Flowers solitary in axils or grouped apically, pendent; pedicels 2-4 cm long, with recurved pubescence; bracts of involucel ca. 8, spatulate, equaling or shorter than calyx, margin ciliate; calyx tubular, 5-lobed, 15-18 mm long, often yellowish with darker veins, tips of lobes ciliate, otherwise glabrate; petals usually 6 cm long; androecium equaling corolla or slightly exserted, glabrous, anthers ca. 25, purplish; styles slender, prominently exserted. Fruits unknown.

GENERAL DISTRIBUTION: Unknown in the wild but widely cultivated for its showy scarlet flowers.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, and to be expected elsewhere as an introduced garden ornamental.

PAVONIA Cav.

Pavonia Cav., Diss. **2:** Addendum 2. 1786; Diss. **3:** 132. 1787, nom. cons.

Syn.: *Malache* Vogel *in* Trew, Pl. Select. **9:** 50, *t. 90.* 1772, nom. rejic. Type: *Malache scabra* Vogel.

Typhalea Necker, Elem. Bot. **2:** 412. 1790. Type: *Typhalea spinifex* (L.) C. Presl.

Lebretonia Schranck, Pl. Rar. Hort. Monac. **2:** *t. 90.* 1821. Type: *Lebretonia coccinea* Schrank = *Pavonia schrankii* Sprengel.

Prostrate perennial herbs, erect subshrubs or shrubs, often stellate-pubescent, sometimes viscid, sometimes glabrate. Leaves petiolate; blades ovate, elliptic, lanceolate, oblanceolate or deltoid, sometimes lobed or asymmetrical, margin dentate or crenate (rarely entire). Flowers solitary or paired in axils, or aggregated in racemes, panicles, or heads; involucel present, 4- to many-parted, the bractlets distinct or basally connate; calyx gamosepalous, 5-lobed; petals white, lavender, purple, or yellow, sometimes with basal spot; staminal column included or exserted, sometimes declined with secund anthers, surmounted by 5 apical teeth; styles 10, exceeding androecium, stigmas capitate. Fruits schizocarpic, dry; mericarps 5, usually indehiscent, sometimes winged, spined, rugose, or otherwise ornamented, minutely pubescent or glabrous; seeds solitary.

LECTOTYPE: *Pavonia paniculata* Cav.

A genus of over 200 species, of which more than 100 are South American. It is also well represented in Africa and other parts of the Old World, and occurs in the West Indies, Central America, and Mexico, reaching the southern United States.

Key to the Species

1. Flowers and fruits disposed in glomerules or heads terminating long axillary peduncles; corolla white or pink; leaves lanceolate to oblanceolate, palmately 3-nerved from the base, but appearing penninerved.
   2. Bracts of involucel 4 to 6, narrowly ovate, 1.5-3 mm wide; mericarps with 3 retrorsely barbed spines, crowded apically . . . . *P. fruticosa*
   2. Bracts of involucel 7 to 11, linear-lanceolate, 0.5-1.5 mm wide; mericarps with 3 retrorsely barbed spines, 1 apical, 2 lateral . . . . *P. schiedeana*
1. Flowers and fruits solitary or in racemes or panicles, not in congested heads; corolla yellow or greenish yellow; leaves more or less ovate, palmately nerved.
   3. Flowers and fruits solitary, axillary; fruits with prominent retrorsely barbed spines . . . . *P. spinifex*
   3. Flowers and fruits in terminal racemes or panicles; fruits without spines.
      4. Flowers and fruits in leafless terminal racemes; corolla tubular, greenish yellow; leaves subentire; plants of brackish estuaries . . . . . *P. paludicola*
      4. Flowers and fruits in leafy panicles; corolla rotate, bright yellow; leaves manifestly dentate, sometimes lobed; plants of drier habitats . . . . *P. paniculata*

Pavonia fruticosa (Miller) Fawcett & Rendle, Fl. Jamaica **5:** 130. 1926.

Basionym: *Sida fruticosa* Miller, Gard. Dict. ed. 8, no. 18. 1768.
Type: *Miller s.n.* (holotype, BM).
Syn.: *Urena typhalea* L., Mant. Pl. **2:** 258. 1771. (Type: not designated).
Urena leptocarpa L. f., Suppl. Pl. 308. 1782. (Type: Surinam, *Dahlberg s.n.*).
Pavonia leptocarpa (L. f.) Cav., Diss. **3:** 351. 1787.
Pavonia typhalea (L.) Cav., Diss. **3:** 134. 1787.
Urena stellata Sprengel, Neue Entd. **2:** 163. 1821. (Type: Brazil, *Sello s.n.*, if in the Sprengel herbarium, then destroyed).
Pavonia typhaleoides Kunth *in* Humb, Bonpl. & Kunth, Nov. Gen. Sp. **5:** 217 (ed. folio), 279 (ed. quarto). 1822. (Type: inter S. Ana et Mariquita Novo-Granatensium, *Humboldt & Bonpland s.n.* (holotype, P; IDC 6209. 131: I. 5, photo!).)
Pavonia stellata (Sprengel) Sprengel, Syst. Veg. **3:** 97. 1826.
Pavonia glomerata Casar., Nov. Stirp. Bras. 38. 1842. (Type: Brazil, Bahia, *Casaretto s.n.* (holotype, TO ?).)
Pavonia surinamensis Miq. *in* Hoeven & Vriese, Tijdschr. Nat. Geschied. **10:** 77. 1843. (Type: Surinam, *Focke s.n.* (holotype, U ?).)
Pavonia brachypoda Turcz., Bull. Soc. Imp. Naturalistes Moscou **36:** 563. 1863. (Type: Jamaica, prope St. Marys, *Graham s.n.*, specimen unknown.)
Typhalaea fruticosa (Miller) Britton ex Britton & P. Wilson, Bot. Porto Rico **5:** 560. 1924.
Pavonia fruticosa (Miller) Fawcett & Rendle var. *typhalea* (L.) Stehlé, Bull. Soc. Bot. France **92:** 263. 1945.

Subshrub 0.5-1.5 m tall with minute, rough, stellate pubescence. Leaves with petioles 1-2 cm long; blades lanceolate to oblanceolate, 4-20 × 7.5-8 cm, base truncate to cuneate, apex acuminate, margin irregularly serrate, seemingly penninerved, somewhat discolorous. Flowers aggregated in terminal corymbiform heads (usually 5 to 8 per head), or in heads terminating lateral branches that usually exceed the subtending leaf, the heads usually involucrate; pedicels 1-6 mm long; bracts of involucel 4 to 6, 8-10 mm long, basally connate; calyx shorter than involucel; petals white (sometimes fading pink ?). Fruits schizocarpic, glabrous, each mericarp with 3 retrorsely barbed spines crowded at apex, the spines 3-6 mm long, ascending.

General distribution: West Indies, Costa Rica, Panama, and northern South America (Colombia, Venezuela, Ecuador, Peru, Brazil).

Distribution in Lesser Antilles: Dominica!, St. Vincent!.

Common names: Anamu, cadillo pequeque.

Pavonia paludicola Nicolson, nom. nov. Figure 94.

Replaced Syn.: *Malache scabra* Vogel *in* Trew, Pl. Select. **9:** 50, *t. 90.* 1772.
Type: Loc. cit. *t. 90.*
Syn.: *Pavonia spicata* Cav., Diss. **3:** 136, *t. 46, fig. 1.* 1787, nom. illegit. based on *Malache scabra* Vogel.
Althaea racemosa Sw., Prodr. 102. 1788, nom. illegit. citing *Pavonia spicata* Cav.
Pavonia racemosa Sw., Fl. Ind. Occid. **2:** 1215. 1800, nom. illegit.
Malache spicata Kuntze, Revis. Gen. Pl. **1:** 70. 1891, nom. illegit.
Pavonia scabra (Vogel) Cif., Atti Ist. Bot. Univ. Pavia, ser. 4, **8:** 321. 1936, non Presl (1835), nec Benth. ex Garcke (1881).

Sprawling or semiscandent shrub, 1.4 m tall; stems minutely stellate-pubescent. Leaves with petioles 1.5-2 cm long; blades ovate, 6-18 × 4-10 cm, base subcordate, apex acuminate, margin obscurely dentate or subentire, palmately nerved, sparsely and minutely stellate-pubescent above and beneath. Inflorescences terminal, leafless racemes. Flowers with pedicels 1-3 cm long, stellate-pubescent; bracts of involucel ca. 8, lanceolate, shorter than calyx, connate at very base; calyx 8-11 mm long, more or less prominently veined longitudinally, minutely stellate-pubescent; petals erect, 12-18 mm long, pale yellow or yellow-green, externally minutely pubescent; androecium included, subequal to corolla. Fruit an indurate schizocarp, 5-pointed, glabrous; mericarps narrowed at base, apically 3-pointed, brownish.

General distribution: Around the shores of the Caribbean Sea, in northern South America, Central America (not including Mexico), and the West Indies, extending northward to Florida and the Bahamas.

Distribution in Lesser Antilles: St. Martin, St. Barts, Antigua, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

Common names: Mahot-mare, sunabao, mahot-mangle, gombo-mangle, swamp bush, cadillo de cienaga, koton, wild cotton.

Note: This species occurs on stream banks and in estuaries, usually growing in water in mangrove associations.

Pavonia paniculata Cav., Diss. **3:** 135, *t. 46, fig. 2.* 1787.

Type: Peru, ca. flum. Maragnon, *Dombey s.n.* (holotype, MA, as photo BM!; isotype, P-LA, IDC 6207. 84: III. 3, photo!).

Syn.: *Althaea corymbosa* Sw., Prodr. 101. 1788; Fl. Ind. Occid. **2:** 1213. 1800. (Type: Jamaica, *Swartz s.n.* (holotype, s!).)

Pavonia corymbosa (Sw.) Willd., Sp. Pl. **3:** 836. 1800.

Pavonia laxifolia A. St. Hil., Fl. Bras. Merid. **1:** 226. 1827. (Type: Brazil, Minas Gerais, prope S. Marie de Baependy, *St. Hilaire s.n.* (holotype, P, n.v.).)

Pavonia scabra C. Presl, Reliq. Haenk. **2:** 129. 1835, non (Vogel) Cif., 1936. (Type: in serris mexicanis occidentalibus, *Haenke s.n.* (PR-2 sheets!).)

Pavonia caracasana Turcz., Bull. Soc. Imp. Naturalistes Moscou **31:** 188. 1858. (Type: Venezuela, Caracas prope Galipan, *Funck & Schlim 191* (holotype, KW!; isotypes, BM!, OXF!).)

Malache paniculata (Cav.) Kuntze, Revis. Gen. Pl. **1:** 70. 1891.

Lebretonia paniculata (Cav.) Britton ex Britton & P. Wilson, Bot. Porto Rico **5:** 561. 1924.

Subshrubs or shrubs to 3 m tall; stems stellate-pubescent with denser lines of pubescence decurrent from the stipules, also with glandular hairs especially in inflorescence. Leaves with petioles 1-3 cm long; blades ovate, oblong, or 3-lobed, 6-12 × 3-8 cm, base cordate, apex acute or acuminate, margin serrate, discolorous, minutely pubescent above and beneath. Inflorescences widely branched, viscid panicles, at least the upper parts leafless. Flowers pedicellate; bracts of involucel usually 7 or 8, linear, subequal to calyx, often dark-pigmented, viscid and ciliate; calyx ca. 6 mm long, ca. half-divided, often basally whitish; petals 10-15 mm long, pale yellow to yellow-orange; androecium included, staminal column pallid, filaments as long as the column, anthers bright yellow; styles glabrous, stigmas slightly exceeding the stamens, reddish. Fruits oblate, 6-7 mm in diameter; mericarps twice the height of the column, reticulate-veined, subglabrous; seeds 3 mm long, minutely and sparsely scabridulous.

GENERAL DISTRIBUTION: Mexico, the West Indies, and Central and South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe (fide Urban) and St. Vincent (fide Fawcett & Rendle).

COMMON NAME: Cadillo anaranjado.

Pavonia schiedeana Steudel, Nomencl. Bot. ed. 2, **2:** 279. 1841.

Basionym: *Pavonia rosea* Schldl., Linnaea **11:** 355. 1837, non Wallich ex Moris (1833).

Type: Mexico, Veracruz, Hacienda de La Laguna, 1833, *Schiede s.n.* (B, destroyed, as photo F-9467!, GOET!, HAL ?).

Syn.: *Pavonia fruticosa* (Miller) Fawcett & Rendle var. *angustiloba* Stehlé, Bull. Soc. Bot. France **92:** 264. 1945. (Type: Martinique, *Stehlé & Stehlé 5375* (isotype, US!).)

Subshrub or shrub 0.5-2 m tall, minutely stellate-pubescent. Leaves with petioles 1-5 cm long; blades lanceolate, oblong, or obovate, 4-20 × 2.5-5 cm, base truncate, apex acute, margin crenate-dentate, somewhat discolorous.

Inflorescences terminal, subcapitate, or heads terminating lateral branches that sometimes exceed the subtending leaf. Flowers with bracts of involucel usually ca. 8 (7 to 11), linear-lanceolate, basally connate; calyx 4-5 mm long; petals 6-9 mm long, pink. Fruits schizocarpic, glabrous; mericarps each with 3 retrorsely barbed spines, the central (apical) one the longest.

GENERAL DISTRIBUTION: Mexico, Central and South America, and the West Indies.

DISTRIBUTION IN LESSER ANTILLES: Martinique!.

Pavonia spinifex (L.) Cav., Diss. **3:** 133, *t. 45, fig. 2.* 1787.

Basionym: *Hibiscus spinifex* L., Syst. Nat. ed. 10, **2:** 1149. 1759.
Type: Plum., Pl. Amer. *pl. 1.* 1755.
Syn.: *Malache spinifex* (L.) Kuntze, Revis. Gen. Pl. **1:** 70. 1891.

Subshrub ca. 1 m tall; stems minutely pubescent to glabrate, the hairs often in well-defined longitudinal rows. Leaves with petioles 1-5 cm long; blades ovate, 4-12 × 2-8 cm, base truncate or somewhat cordate, apex acute, margin irregularly crenate or crenate-serrate, sparsely stellate-pubescent to glabrate. Flowers solitary, axillary; pedicels 1-3(-4) cm long; bracts of involucel ca. 8, lanceolate or slightly spatulate, somewhat shorter to somewhat longer than calyx; calyx 8-11 mm long, ca. half-divided, the lobes ciliate with hairs 1-2 mm long; petals 18-27 mm long, yellow; androecium equaling corolla or slightly exserted. Fruits schizocarpic; mericarps 3-spined, the spines retrorsely barbed, 8-10 mm long, the central spine erect, the lateral spines divergent.

GENERAL DISTRIBUTION: Southeastern United States and the West Indies; reported from elsewhere but such reports are either unsubstantiated or based on misidentifications of other species, such as *P. uniflora* (Sessé & Mociño) Fryx. and *P. sepium* St. Hil.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua, Saba!, St. Eustatius!, St. Kitts, Montserrat!, Guadeloupe!, Marie Galante!, Dominica, Martinique!, St. Lucia!, St. Vincent, Grenada, Barbados!.

COMMON NAMES: Mahot jaune, coquelicot, cadillo espinoso.

SIDA L.

Sida L., Sp. Pl. **2:** 683. 1753.

Perennial herbs or subshrubs, erect or prostrate, glabrous or pubescent, sometimes viscid. Leaves petiolate to subsessile; blades ovate (sometimes lobed), elliptic or linear, margin usually dentate. Flowers solitary in axils, in axillary glomerules, or in dense or open terminal inflorescences; involucel absent; calyx gamosepalous, 5-lobed, usually 10-costate at base and angularly plicate in bud; corolla white, yellow, orangish, rose, or purple, sometimes with a red center; androecium included, usually pallid. Fruits schizocarpic, glabrous or pubescent; mericarps 5 or more, 1-seeded, usually reticulate on lateral walls, indehiscent below with well differentiated dorsal wall, more or less dehiscent apically with two more or less differentiated spines; seeds glabrous.

LECTOTYPE: *Sida alnifolia* L.; see N. L. Britton & A. Brown, Ill. Fl. N. U.S. ed. 2, **2:** 520. 1913.

A genus of ca. 150 species from the Americas, Africa, Asia, and Australia, some of which are widespread weeds.

NOTE: *Sida antillensis* Urban (Symb. Antill. **5:** 418. 1908) was described citing material from Cuba, Puerto Rico, Guadeloupe (*Duss 2341, 3498*), and St. Vincent (*Smith 1059*), but without designation of a holotype. The species was considered as a synonym of *S. carpinifolia* L. f. by Britton & Wilson (1924). Stehlé apparently chose *Duss 3498*, which he considered to be representative of a hybrid, as the type of *Sida carpinifolia* L. f. var. *hochreutineri* Stehlé (Boissiera **7:** 37. 1943). Fryxell (Sida **11:** 62-91. 1985) considers *Sida antillensis* Urban as a distinct species, but has seen material only from the Florida Keys, the Bahamas, and Central America. The presence of this species in the Lesser Antilles, and its status, requires further study.

KEY TO THE SPECIES

1. Mericarps (and styles and stigmas) uniformly 5.
    2. Calyx lobes trullate, dark green-margined and -veined; calyx angled but not prominently nerved; leaves cordate, acute (sect. *Nelavagae*).
        3. Plants repent, never viscid; mericarps awned . . . . *S. repens*
        3. Plants ascending to erect, often scandent, sometimes viscid; mericarps various.
            4. Flowers and fruits subsessile, aggregated into dense axillary glomerules or in axillary pedunculate "heads"; stems often hispid (hairs 2-3 mm long); mericarps muticous, glabrous . . . . *S. urens*
            4. Flowers and fruits manifestly pedicellate, not crowded; stems not hispid; mericarps awned, pubescent . . . . *S. glabra*
    2. Calyx without dark green margins and veins, 10-costate from the base; leaves truncate to subcordate, obtuse to acute (sect. *Spinosae*).
        5. Plant procumbent but not repent, sometimes ascending, often with long simple hairs (1-2 mm) in addition to stellate pubescence; leaves small (usually < 2 cm long), often obtuse . . . . *S. abutifolia*
        5. Plants erect, stellate-pubescent or -puberulent but lacking long simple hairs on stems; leaves usually > 2 cm long, acute or obtuse.
            6. Leaves (and branching pattern) distichous; stipules prominent, lanceolate or falcate.
                7. Plants densely and softly stellate-pubescent throughout; leaves often obtuse; mericarps with beaks 1-1.5 mm long . . . . . . *S. jamaicensis*
                7. Plants stellate-pubescent, sometimes also with simple hairs; leaves acute; mericarps minutely apiculate . . . . *S. glomerata*
            6. Leaves spirally disposed; stipules inconspicuous, subulate . . . . *S. spinosa*

1. Mericarps (and styles and stigmas) usually more than 5 (5 to 8 in *S. aggregata*, *S. pyramidata*, *S. ciliaris*, and *S. salviifolia*).

8. Plants procumbent to ascending; mericarps 5 to 8, dorsally with numerous spiny murications; flowers and fruits congested at apices of branches with leaves and stipules as a result of abruptly shortened terminal internodes (sect. *Malachroideae*) . . . . *S. ciliaris*

8. Plants erect; mericarps not muricately spinose, though often laterally reticulate and with two apical awns; flowers and fruits not congested as above.

9. Leaves entire, short-petiolate or subsessile, narrowly linear-lanceolate (up to 20 times as long as broad); inflorescences terminal, corymbiform, esentially leafless; mericarps 7 to 9, glabrous, unornamented; flowers white with red center (sect. *Steninda*) . . . . *S. linifolia*

9. Leaves serrate, long- or short-petiolate, variously shaped and broader than above; inflorescences not as above; mericarps usually apically 2-spined and laterally reticulate; flowers white to yellow-orange, usually without red center.

10. Stems, petioles, pedicels, and calyces often setiferous with many long (2-4 mm) simple hairs in addition to other pubescence; flowers sometimes pedicellate below, but commonly subsessile in axillary glomerules, the latter often aggregated into racemiform or paniculate inflorescences; mericarps ca. 7, submuticous, weakly (if at all) reticulate (sect. *Muticae*) . . . . *S. aggregata*

10. Herbage variously pubescent to glabrate but not prominently setiferous; flowers variously disposed but not densely aggregated as above (except sometimes in *S. cordifolia*); mericarps 7 or more, usually strongly reticulate (except weakly so in S. pyramidata) and apically spined.

11. Flowers in open terminal panicles; calyx 3-5 mm long, ecostulate and rounded; mericarps fragile-walled, indehiscent, with minute endoglossum internally . . . . *S. pyramidata*

11. Flowers axillary or in dense terminal inflorescences; calyx 5-8 mm long, costulate and angled; mericarps indurate, apically dehiscent, lacking endoglossum.

12. Spines of mericarps retrorsely barbed; leaves more or less ovate, serrate nearly to base.

13. Flowers often in terminal panicles; fruits 6-7 mm in dia.; mericarps 8 to 14; climax leaves cordate-ovate (but reduced and narrower upward) . . . . *S. cordifolia*

13. Flowers axillary, often congested apically; fruits 4-5 mm in dia.; mericarps 5 to 8; climax leaves lanceolate to elliptic . . . . *S. salviifolia*

12. Spines of mericarps antrorsely pubescent or glabrous; leaves lanceolate to rhomboid, basally entire, distally serrate.

14. Leaves (and branching pattern) distichous, concolorous; plants variably pubescent, sometimes glabrate; stipules often broadly falcate; pedicels subequal to petioles . . . . *S. acuta*

14. Leaves (and branching pattern) spirally disposed, often discolorous; plants minutely pubescent (hairs 0.1 mm long); stipules subulate; pedicels usually exceeding petioles . . . . *S. rhombifolia*

Sida abutifolia Miller, Gard. Dict. ed. 8. 1768. FIGURE 95.

Type: In cultivation, *Miller s.n.* (holotype, BM!).

Syn.: *Sida procumbens* Sw., Prodr. 101. 1788. (Type: Hispaniola, *Swartz s.n.* (lectotype, S!; isolectotype, BM!).

Sida supina L'Hér., Stirp. Nov. 109 bis, *t. 52 bis.* 1789. (Type: In Hort. Paris, ex Hispaniola (G-DC, IDC 2562. 202: I. 5, photo!; MA, as photo F-29790!).)

Sida diffusa Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 200 (ed. folio), 257 (ed. quarto). 1822. (Type: Mexico, Guanajuato, Zelaya, *Humboldt & Bonpland s.n.* (B-W #12673, IDC 7440. 910(2-2): I. 5, photo!; P, IDC 6209. 129: III. 7, photo!).)

Sida filiformis Moric. ex Ser., Bull. Bot. **6:** 174. 1830, non Jacq. (1767). (Type: Mexico, circa Tampico de Tamaulipas, *Berlandier 220* (OXF!).)

Sida filicaulis Torrey & A. Gray, Fl. N. Amer. **1:** 232. 1838. (Type: Texas, 1835, *Drummond s.n.* (holotype, NY!; isotype, K!).)

Procumbent perennial herbs; stems usually with patent simple hairs 1-2 mm long. Leaves with petioles 1-2 cm long; blades ovate, 1.5-2 × 1-1.4 cm, base cordate, apex obtuse to acute, margin crenate to base, pubescent above and beneath; stipules inconspicuous. Flowers solitary in axils; pedicels slender, 1-2.5 cm long; calyx 4-5 mm long, the lobes acuminate, hirsute; corolla 5-6 mm long, white. Fruits conical, pubescent; mericarps 5, apically 2-spined, the spines ca. 1 mm long, antrorsely pubescent.

GENERAL DISTRIBUTION: From the southern United States to northern South America, often weedy.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts!, Antigua!, Saba, St. Eustatius, Guadeloupe!, Martinique.

Sida acuta Burman f., Fl. Indica 147. 1768.

Lectotype: Java, *s. coll. s.n.* (G); designated by Borssum Waalkes, Blumea **14:** 187-188. 1966.

Syn.: *Sida ulmifolia* Miller, Gard. Dict. ed. 8, no. 1. 1768, non Cav. (1785). (Type: In cultivation, *Miller* herb. no. 1 (BM!), mounted with a *Wright* specimen from Jamaica).)

Sida carpinifolia L. f., Suppl. Pl. 307. 1782. (Type: Madera, *Masson s.n.* (LINN-SM 1157.51 ?, BM!).)

Sida commixta Gand., Bull. Soc. Bot. France **71:** 629. 1924. (Type: Guadeloupe, *Collardeau s.n.*.)

Sida martinicensis Gand., Bull. Soc. Bot. France **71:** 629. 1924. (Type: Martinique, *Mondon s.n.*)

Erect shrub or subshrub ca. 1 m tall, with distichous branching pattern and leaf arrangement, more or less hirsute to glabrate. Leaves with petioles 4-5 mm long; blades lanceolate to ovate, 1-7 × 0.5-4 cm, base truncate, apex acute, margin serrate at least distally, concolorous, hirsute to glabrate; stipules prominent, broadly falcate and often exceeding the petiole. Flowers solitary or paired in axils; pedicels short, more or less equaling the petioles; calyx 6-8 mm long, ca. half-divided, basally 10-costate, often ciliate; petals 7-10 mm long, white, yellow, or yellow-orange (commonly polymorphic in single population); androecium included, pallid. Fruits schizocarpic; mericarps 8 to 10, the apical spines variously developed.

GENERAL DISTRIBUTION: Pantropical, often weedy.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts, Antigua!, Saba!, St. Kitts, Montserrat!, Guadeloupe!, La Désirade!, Dominica!, Martinique!, St. Lucia, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Balai-savane, balyé savann, balié, balai-onze-heures, wire weed, sweet broom, broomweed.

NOTE: According to Stafleu (1967), the publication date for *S. acuta* Burman f. is ''Mar-April (ante 6) 1768'', and that for *S. ulmifolia* Miller is ''16 Apr 1768.'' Thus, Burman's name has priority.

Sida aggregata C. Presl, Reliq. Haenk. **2:** 106. 1835.

Type: Mexico, *Haenke s.n.* (holotype, PR).

Syn.: *Sida setifera* C. Presl, Reliq. Haenk. **2:** 105. 1835. (Type: in terris mexicanis occidentalibus, *Haenke s.n.* (holotype, PR; isotype, W, as photo F-32642!).)

Sida arguta C. Presl, Reliq. Haenk. **2:** 106. 1835, non Sw. (1788). (Type: ad portum Acapulco in Mexico, *Haenke s.n.* (holotype, PR!).)

Sida savannarum Schumann **in** C. Martius, Fl. Bras. **12**(3): 308. 1891. (Type: British Guiana, *Schomburgk 819* (B, destroyed, as photo F-9395!).)

Shrub to 1.5 m tall, erect, branching; stems, petioles and especially calyces setiferous (the hairs 1.5-2 mm long), in addition to other pubescence. Leaves with petioles 5-7 cm long; blades ovate to somewhat 3-lobed, 2.5-8.5 × 2-6 cm, base cordate, apex acuminate, margin serrate, softly stellate-tomentose above and beneath; stipules subulate, 4-9 mm long. Flowers subsessile in dense, terminal, spiciform aggregations that are branched to form paniculate inflorescences; calyx 6-7 mm long, prominently 10-angled, densely hirsute; corolla yellow or yellow-orange. Fruits with mericarps 5 to 7, 2 mm high, submuticous, essentially unornamented.

GENERAL DISTRIBUTION: Mexico (Sinaloa to Chiapas), Central America, South America (British Guiana to Colombia), and the West Indies.

DISTRIBUTION IN LESSER ANTILLES: St. Barts (fide Questel), Antigua (fide Vélez).

NOTE: The names *Sida aggregata* and *S. setifera*, having been published at the same time, have equal priority (as would *S. arguta* if it were not an illegitimate later homonym). A. Robyns (Ann. Missouri Bot. Gard. **52:** 557. 1966) comes the closest to combining these names under *S. setifera*, but does not actually do so since he lists *S. aggregata* in synonymy with a question mark. Priority was established by Fryxell (Sida **11:** 76. 1985) recognizing *S. aggregata* as the correct name for this species with *S. setifera* listed in synonymy.

Sida ciliaris L., Syst. Nat. ed. 10, **2:** 1145. 1759.

Type: Jamaica, *Browne s.n.* (holotype, LINN 866.8, as microfiche!). Note: The type is not LINN 866.6 as stated by Borssum Waalkes (Blumea **14:** 179. 1966; see comment on the type by Clement (Contr. Gray Herb. **180:** 24. 1957).

Syn.: *Sida anomala* A. St.-Hil., Fl. Bras. Merid. **1:** 177. 1827. (Type: Uruguay, près le village de Sando, *St.-Hilaire* C212470 (P, as photo F-35529).)

Sida ciliaris L. var. *anomala* (A. St.-Hil.) Schumann *in* Engl. & Prantl, Nat. Pflanzenfam. **3**(6): 43. 1890.

Sida bellidifolia Gand., Bull. Soc. Bot. France **71:** 629. 1924. (Type: St. Croix, *Hansen s.n.*)

Sida microtricha Gand., Bull. Soc. Bot. France **71:** 629. 1924. (Type: St. Thomas, *Eggers 194.*)

Sida ononidifolia Gand., Bull. Soc. Bot. France **71:** 629. 1924. (Type: St. Thomas, *Eggers 194.*)

Decumbent perennial herb, freely branching; stems with appressed stellate hairs, the hairs usually 4-armed. Leaves mostly crowded at apices of branches because of marked shortening of internodes; petioles 5-6 mm long; blades narrowly elliptic, 0.5-2 × 0.5-0.7 cm, apex acute or obtuse, margin few-toothed apically, glabrous above, stellate-pubescent beneath; stipules linear to oblanceolate, 4-12 mm long, crowded, partially adnate to petiole, ciliate. Flowers and fruits subsessile, crowded among leaves and stipules at branch apices; calyx 4-6 mm long, half-divided, hirsute; corolla often rose, sometimes red-orange or even yellowish. Fruits conical, more or less muricate; mericarps 5 to 8.

GENERAL DISTRIBUTION: From the southern United States to Argentina.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts!, Barbuda, Antigua!, St. Eustatius, Montserrat, Guadeloupe!, La Désirade!, Marie Galante, Martinique!, St. Lucia!, the Grenadines, Grenada, Barbados.

COMMON NAMES: Balai-trois-heures, petit balai.

Sida cordifolia L., Sp. Pl. **2:** 684. 1753.

Holotype: LINN 866.12, as microfiche!.

Syn.: *Sida altheifolia* Sw., Prodr. 101. 1788. (Type: Jamaica, *Swartz s.n.* (holotype, S!).)

Sida conferta Link, Enum. Hort. Berol. Alt. 207. 1822. (Type: Brazil, specimen unknown.)

Sida cordifolia L. var. *altheifolia* (Sw.) Griseb., Fl. Brit. W. Indian Is. 76. 1859.

Sida cordifolia L. var. *conferta* (Link) Griseb., Fl. Brit. W. Indian Is. 76. 1859.

Sida hamulosa Salzm. ex Griseb., Fl. Brit. W. Indian Is. 76. 1859, in syn.

Erect shrub or subshrub to 1.5 m tall with ascending branches, stellate-tomentose throughout. Leaves with petioles 2-3 cm long; blades cordate to lance-ovate, 1.5-9 × 1-6.5 cm, reduced upwards, apex acute, margin serrate to base, soft-tomentose above and beneath. Flowers and fruits axillary but usually aggregated terminally into congested paniculate or corymbiform inflorescences; calyx prominently 10-ribbed, 6-7 mm long, tomentose; corolla yellow-orange. Fruits 6-7 mm in diameter, apically pubescent; mericarps

8 to 14, each with two apical spines (variously developed, rarely supressed) that are retrorsely pubescent.

General distribution: Pantropical.

Distribution in Lesser Antilles: St. Martin, St. Barts!, Antigua, St. Kitts!, Redonda!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Barbados!.

Common names: Balai poilu, balai savane, balai-onze-heures.

Sida glabra Miller, Gard. Dict. ed. 8, no. 14. 1768, not Nuttall (1834).

Type: *Houston s.n.* (BM, as photo BH-5077!).
Syn.: *Sida glutinosa* Comm. ex Cav., Diss. **1:** 16, *t. 2, fig. 8.* 1785. (Type: Mauritius, *Commerson s.n.* (lectotype, P-JU #12278A; IDC 6206. 909: III. 7, photo!); designated by Borssum Waalkes, Blumea **14:** 190. 1966.)
Sida ulmifolia Cav., Diss. **1:** 15, *t. 2, fig. 4.* 1785, non Miller (1768). (Type: Santo Domingo, *Thouin s.n.*)
Sida arguta Sw., Prodr. 101. 1788, non Presl (1835). (Type: Jamaica, *Swartz s.n.* (holotype, S; isotypes, B-W #12692, IDC 7440. 911: I. 2, photo!, and G, as photo F-7996!).)
Sida nervosa DC., Prodr. **1:** 465. 1824. (Type: Santo Domingo, *Bertero s.n.* (holotype, G-DC, IDC 2562. **202:** III. 8, photo!; isotype, MO!).)

Weak-stemmed herbs or subshrubs, to 2 m tall, erect or often reclining or scandent; stems viscid. Leaves with petioles 1-1.6 cm long; blades ovate, 2-7 × 1-3 cm, base cordate, apex acute or acuminate, margin dentate to base, more or less stellate-pubescent above and beneath; stipules inconspicuous. Flowers sometimes solitary in axils but usually aggregated terminally in many-flowered, open, more or less paniculate inflorescences; pedicels several times as long as calyx, viscid; calyx 4-5.5 cm long, the lobes trullate, margins dark-green, viscid; corolla slightly exceeding calyx, white or yellow-orange. Fruits pyramidal, 3-3.5 mm in diameter; mericarps 5, apically 2-spined, the spines 1-2 mm long, antrorsely pubescent.

General distribution: Mexico, West Indies, Central America, and northern South America; locally introduced in parts of southeast Asia.

Distribution in Lesser Antilles: Anguilla!, St. Martin!, St. Barts!, Antigua!, Redonda, Montserrat!, Guadeloupe!, Dominica, Martinique!, Grenada!.

Common name: Balai-cinq-heures.

Sida glomerata Cav., Diss. **1:** 18, *t. 2, fig. 6.* 1785.

Type: location unknown, *Jussieu s.n.* (holotype, P-JU #12249, n.v.; IDC 6206. 908: I. 1, photo!, as 'conglomeratus').

Subshrub 0.5-1 m tall, distichously branched; stems arching, stellate-pubescent and sometimes with simple hairs ca. 1 mm long. Leaves short-petiolate to subsessile, 3-4 mm long, sometimes appearing imbricate because of distichous disposition and relatively short internodes; blades lanceolate to elliptic, 1.5-6 × 1-2.5 cm, apex acute, margin serrate, sparsely ciliate above and beneath, especially on margins; stipules prominent, broadly falcate, several-nerved, usually exceeding petioles, ciliate. Flowers short-pedicellate or subsessile, solitary or in axillary glomerules; calyx 4-5 mm long, ciliate; corolla 6-8 mm long, white or yellowish; androecium shorter than petals, glabrous, the anthers yellowish. Fruits almost glabrous; mericarps 5, 2-spined.

GENERAL DISTRIBUTION: West Indies and Central America (Nicaragua, Costa Rica, Panama), and widespread in South America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Montserrat!, Guadeloupe, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!.

COMMON NAME: Balai savane.

Sida jamaicensis L., Syst. Nat. ed. 10, **2:** 1145. 1759.

Type: LINN 866.10, as microfiche!.

Syn.: *Sida mollis* L. Rich., Actes Soc. Hist. Nat. Paris **1:** 111. 1792. (Type: not stated, presumably at P.)

Sida hermannioides Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 200 (ed. folio), 258 (ed. quarto). 1822. (Type: Nova Granatensis prope Honda, *Humboldt & Bonpland s.n.* (holotype, P; IDC 6209. 130: I. 1, photo!).)

Sida tristis Schldl., Linnaea **3:** 271. 1828. (Type: St. Thomas, *Ehrenberg s.n.* (B?, HAL?).)

Sida carpinifolia L. f., var. *antillana* Millsp., Publ. Field Columbian Mus., Bot. Ser. **2:** 71. 1900, nom. nov. for *Sida jamaicensis* Vell. Conc., Fl. Flumin. 277. 1829; **7:** *t. 10.* 1831.

Sida densiuscula Gand., Bull. Soc. Bot. France **71:** 630. 1924. (Type: St. Thomas, *Eggers 195.*)

Sida eggersii Gand., Bull. Soc. Bot. France **71:** 630. 1924. (Type: St. Thomas, *Eggers 195.*)

Sida guadalupensis Gand., Bull. Soc. Bot. France **71:** 630. 1924. (Type: Guadeloupe, *Duss 3210* (isotype, GH!).)

Subshrub 0.5-1 m tall, with distichous branching pattern and leaf arrangement, softly stellate-pubescent throughout. Leaves with petioles 4-6 mm long; blades broadly ovate-elliptic, 1-5 × 1-3 cm, apex acute or obtuse, margin serrate-crenate, somewhat discolorous, soft-pubescent above and beneath. Flowers one or more per leaf axil; pedicels shorter than petioles; calyx 6-7 mm long, the lobes acuminate, ciliate; corolla white. Fruits apically pubescent; mericarps 5, 2-spined, blackish at maturity.

GENERAL DISTRIBUTION: Mexico, West Indies, Central America, and northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, Montserrat!, Guadeloupe!, Les Saintes.

COMMON NAME: Balai-onze-heures.

Sida linifolia J. Juss. ex Cav., Diss. **1:** 14, *t. 2, fig. 1.* 1785.

Type: In insula Caiene et in Peru, *J. de Jussieu s.n.* (holotype, P-JU #12243A; IDC 6206. 907: I. 7, photo!).

Syn.: *Sida graminifolia* L. Rich., Actes Soc. Hist. Nat. Paris **1:** 111. 1792. (Type: not stated, presumably at P.)

Erect to ascending subshrub to 1 m tall; stems more or less hirsute. Leaves short-petiolate to subsessile, 2-4 mm long; blades narrowly lanceolate to linear, 2-8 × 1 cm, apex acute, margin entire, hirsute with simple hairs 1-2.5 mm long. Flowers and fruits in terminal corymbiform inflorescences above the foliage; pedicels 0.5-1 cm long; calyx 5-6 mm long, hirsute; corolla 7-9 mm long, white with dark red center. Fruits oblate, 4-5 mm in diameter, glabrous; mericarps 7 or 8, muticous.

GENERAL DISTRIBUTION: West Indies, Mexico, Central and South America, Africa, and Fiji.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique.

COMMON NAMES: Balai gaud, balai grand.

NOTE: This species commonly occurs in savanna habitats.

Sida pyramidata Cav., Diss. **1:** 11, *t. 1, fig. 10.* 1785; **6:** *t. 194, fig. 1.* 1788.

Type: Santo Domingo, *Desportes s.n.* (holotype, P-JU #12272; IDC 6206. 909: II. 6, photo!).

Syn.: *Sida dumosa* Sw., Prodr. 101. 1788. (Type: Jamaica, *Swartz s.n.* (holotype, S!; isotypes, BM! and B-W #12713, IDC 7440. 912: I. 3, photo!).)

Sida leiophylla Sprengel, Syst. Veg. **3:** 121. 1826. (Type: Porto Rico, *Bertero s.n.* (B?).)

Sida dumosa Sw. var. *fendleri* E. G. Baker, J. Bot. **30:** 296. 1892. (Type: Venezuela, prope coloniam Tovar, *Fendler 70* (holotype, K!; isotype, GH!).)

Shrubs 1-3 m tall; stems minutely puberulent. Leaves with petioles 1.5-9 cm long; blades ovate, 4-12 × 5-9 cm, base cordate, apex acuminate, margin crenate. Inflorescences terminal panicles. Flowers with calyx ecostulate, 3-5 mm long, the lobes twisted in bud, stellate-pubescent; petals white or pale yellow; androecium included; styles slender, 5 to 7. Fruits rostrate, more or less 5- to 7-lobulate; mericarps 5 to 7, indehiscent, relatively fragile-walled, the dorsal wall rounded, with small endoglossum internally; seed solitary.

GENERAL DISTRIBUTION: Mexico through Central America to Colombia and Venezuela; also in Cuba, Puerto Rico, Hispaniola, and Jamaica.

DISTRIBUTION IN LESSER ANTILLES: Martinique (fide Britton & P. Wilson, and Stehlé), but no specimens seen. Cited by Duss (#856) from Martinique.

NOTE: *Sida pyramidata* is here retained in *Sida* although it has recently been segregated, together with *Sida hilariana* C. Presl and *Sida interrupta* DC., as the distinct genus *Allosidastrum.*

Sida repens Dombey ex Cav., Diss. **1:** 7. 1785.

Type: Peru, *Dombey s.n.* (MA).

Syn.: *Sida pilosa* Cav., Diss. **1:** 9, *t. 1, fig. 8.* 1785, non Miller (1768). (Type: Santo Domingo, *Desportes s.n.* (holotype, MA; isotype P-JU #12274, IDC 6206. 909: III. 1, photo!).

Sida dombeyana DC., Prodr. **1:** 463. 1824. (Type: Peru, Lima, *Dombey s.n.* (MA).)

Sida javensis Cav. ssp. *expilosa* Borssum Waalkes, Blumea **14:** 185. 1966, based on *Sida pilosa* Cav.

Repent herb with slender, pubescent stems (glabrate in available material from Lesser Antilles). Leaves with petioles 1-1.8 cm long; blades ovate, 1.2-1.8 × 1.1-1.6 cm, base cordate, apex rounded-acute, margin crenate to base, with appressed simple hairs above and minute stellate hairs to glabrate beneath. Flowers solitary in axils; pedicels slender, exceeding the subtending petioles; calyx 4-5 mm long, the lobes dark-green-margined, ciliate; corolla 6-8 mm long, yellowish. Fruits ca. 3 mm in diameter, minutely pubescent; mericarps 5, short-spined.

GENERAL DISTRIBUTION: West Indies (introduced?), Honduras, Nicaragua, Costa Rica, Panama, Ecuador, Peru, and Malesia (Java to the Philippines).

DISTRIBUTION IN LESSER ANTILLES: Antigua, Saba, Guadeloupe!, Grenada!.

NOTE: This plant is amply confused in the literature, being given the following names among others: *S. veronicaefolia* Lam., *S. humilis* Cav., and *S. hederaefolia* Cav.

Sida rhombifolia L., Sp. Pl. **2:** 684. 1753.

Type: LINN 866.3 (lectotype, as microfiche!); isolectotype, S, IDC 5075. 283: II. 4, photo!.

Syn.: *Sida hondensis* Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 203 (ed. folio), 261 (ed. quarto). 1822. (Type: Novo-granatensis, prope Honda, *Humboldt & Bonpland 1709* (holotype, P; IDC 6209. 130: I. 5, photo!).)

Sida ruderata Macfad., Fl. Jamaica **1:** 81. 1837. (Type: Jamaica, specimen unknown.)

Sida rhombifolia L. var. *minor* Duss, Fl. Phan. Antill. Franç. 65. 1897. (Syntypes: Guadeloupe, *Duss 2340*; Martinique, *Duss 863*.)

Erect subshrub ca. 1 m tall with ascending branches; stems minutely stellate-puberulent, appearing farinaceous, the hairs < 0.1 mm long. Leaves with petioles 3-8 mm long; blades more or less rhomboid, 2-8 × 1-5.5 cm, apex acute to obtuse (rarely retuse), margin serrate distally, more or less discolorous, minutely stellate-puberulent above and beneath, sometimes glabrescent above, sometimes farinaceous beneath. Flowers solitary in axils, mostly scattered along stem; pedicels slender, 1-3 cm long; calyx 5-6 mm long, 10-ribbed at base, minutely puberulent; corolla 7-9 mm long, yellow or yellow-orange. Fruits oblate to conical, 4-5 mm in diameter, glabrous; mericarps 10 to 14, muticous to apically 2-spined, the spine sometimes single through failure of dehiscence.

GENERAL DISTRIBUTION: Pantropical, extending into the temperate zones, a common weed.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Barbuda, Antigua!, Saba!, St. Kitts, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Barbados.

COMMON NAMES: Balai-onze-heures, balai-dix-heures, balié, broomweed.

Sida salviifolia C. Presl, Reliq. Haenk. **2:** 110. 1835.

Type: in Mexico prope Acapulco, *Haenke s.n.* (holotype, PR!; isotype, BM!).
Syn.: *Sida erecta* Macfad., Fl. Jamaica **1:** 80. 1837. (Type: Jamaica, near Half-way Tree (lectotype, K!).)
Sida angustissima A. St.-Hil. var. *moritziana* Schumann *in* C. Martius, Fl. Bras. **12**(3): 336. 1891. (Type: Novo-Granatensis, prope Maracaybo, *Moritz s.n.*, specimen unknown.)
Sida spinosa L. var. *salviifolia* (Presl) E. G. Baker, J. Bot. **30:** 237. 1892.
Sida holwayi E. G. Baker ex Rose, Contr. U.S. Natl. Herb. **5:** 176. 1899. (Type: Mexico, Morelos, Cuautla, *Holway 3043* (holotype, US!; isotype, BM!, GH!).)

Subshrub 0.5-1 m tall with ascending branches; stems stellate-tomentose. Leaves with petioles 2-4 mm long; blades lanceolate to elliptic, 1-5 × 0.5-0.7 cm, apex acute to obtuse, margin serrate to base, softly stellate-tomentose above and beneath; stipules filiform, pubescent. Flowers solitary in axils, often congested at apices of branches; pedicels 2-7 mm long; calyx 5-6 mm long, 5-lobed, stellate-tomentose; corolla white to yellow-orange, sometimes with reddish center. Fruits 4-5 mm in diameter; mericarps 5 to 8, apically 2-spined, the spines 1.7-3 mm long, retrorsely pubescent.

GENERAL DISTRIBUTION: Mexico, West Indies, Venezuela, and Colombia.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Montserrat!.

Sida spinosa L., Sp. Pl. **2:** 683. 1753.

Type: LINN 866.1 (holotype, as microfiche!); isotype, S, IDC 5075. 283: II. 2, photo!.
Syn.: *Sida alba* L., Sp. Pl. ed. 2, **2:** 960. 1763. (Type: Hort. Upsal. (holotype, LINN 866.2, as microfiche!).)
Sida angustifolia Miller, Gard. Dict. ed. 8, no. 3. 1768. (Type: in cultivation, *Miller s.n.* (holotype, BM!).)
Sida angustifolia Lam., Encycl. **1:** 4. 1783, non Miller (1768) nec Medikus (1783). (Type: without locality or collector (holotype, P-LA; IDC 6207. 81: II. 2, photo!).)
Sida minor Macfad., Fl. Jamaica **1:** 79. 1837. (Type: Jamaica, Port Royal Mtns., specimen unknown.)
Sida spinosa L. var. *angustifolia* (Lam.) Griseb., Fl. Brit. W. Indian Is. 74. 1859.

Shrub 1(-2) m tall, erect, with ascending branches; stems minutely stellate-pubescent. Leaves with petioles 0.5-1.5 cm long (sometimes spinose at base of petiole); blades broadly ovate, lanceolate, or narrowly oblong, 1-4 × 0.7-2 cm, apex usually acute, margin serrate to base, sometimes red, discolorous, glabrate above, minutely stellate-tomentose beneath. Flowers solitary or in small groups in axils, scattered along stem and crowded at apices; pedicels to 1 cm long; calyx 5-7 mm long, the lobes triangular, sometimes red-margined, minutely tomentose; corolla yellow or yellow-orange. Fruits 4-5 mm in diameter; mericarps 5, apically 2-spined, the spines ca. 1 mm long, antrorsely pubescent.

GENERAL DISTRIBUTION: From the central United States to central Argentina, frequently as a weed; also in Africa, Asia, Australia, and elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts!, Barbuda!, Antigua!, Guadeloupe!, La Désirade, Martinique!, St. Lucia!, the Grenadines!, Grenada!, Barbados.

COMMON NAMES: Balai savane, balai-onze-heures, balai blanc, white broomweed.

Sida urens L., Syst. Nat. ed. 10, **2:** 1145. 1759.

Type: Jamaica, *Browne s.n.* (LINN 866.20, as microfiche!).
Syn.: *Sida verticillata* Cav., Diss. **1:** 13, *t. 1, fig. 12.* 1785. (Type: Rio de Janeiro, *Commerson s.n.* (holotype, P-JU #12275; IDC 6206. 909: III. 2, photo!; isotype, MA, as photo F-29796).)

Erect or reclining subshrub, sometimes scandent; stems 1-1.5 m long, usually hispid with simple hairs 2-3 mm long together with shorter stellate hairs, sometimes with only stellate hairs. Leaves with petioles 1-4 cm long; blades ovate, 2-8 × 2-4 cm, base cordate, apex acuminate, margin crenate-serrate, more or less stellate-pubescent beneath, or with simple hairs often antrorsely oriented. Flowers and fruits sessile or short-pedicellate, crowded in axillary glomerules or in pedunculate ''heads''; pedicels shorter than calyces; calyx 5-8 mm long, the lobes trullate with dark-green margins, setose; corolla orange (fading rose), often with dark red center. Fruits 3.6-4 mm in diameter, glabrous; mericarps 5, muticous, essentially indehiscent.

GENERAL DISTRIBUTION: Mexico, west Indies, Central and South America, and Africa.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, Guadeloupe!, Marie Galante, Dominica!, Martinique, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Ortie long, ortie-razier, balai-zortie.

SIDASTRUM E. G. Baker

Sidastrum E. G. Baker, J. Bot. **30:** 137. 1892.

Shrubs or subshrub, stellate-pubescent to glabrate. Leaves with blades lanceolate to ovate, base cuneate, truncate, or cordate, apex acute, margin crenate, serrate, or subentire, pubescent or glabrate. Flowers in axillary fascicles or spikes, or in terminal racemes or panicles; involucel absent; calyx small, basally rounded, ecostulate, ca. half-divided; petals barely exceeding calyx or twice as long, yellow, orangish, or purple; androecium ca. equaling petals, the anthers few, sometimes only 10; styles 5 to 10, stigmas capitate. Fruits oblate or subconical, often stellate-pubescent; mericarps 5 to 10, 1-seeded, essentially indehiscent, slightly reticulate laterally.

TYPE: *Sidastrum quinquenervium* (Duchass. ex Triana & Planchon) E. G. Baker, based on *Sida quinquenervia* Duchass. ex Triana & Planchon.

A genus of seven American species, probably with additional species to be added from elsewhere.

Sidastrum multiflorum (Jacq.) Fryx., Brittonia **31:** 298. 1979.
FIGURE 96.

Basionym: *Sida multiflora* Jacq., Observ. Bot. **2:** 23, *t. 45, fig. 1.* 1767, non Cav. (1785).

Type: in Antilles, *Jacquin s.n.* (BM!).

Syn.: *Sida acuminata* DC., Prodr. **1:** 462. 1824. (Type: Santo Domingo, *Bertero s.n.* (holotype, G-DC, IDC 2562. 201: III. 5, photo!; isotypes, MO!, W, photo F-33386!).)

Sida acuminata DC. var. *macrophylla* Schldl., Linnaea **3:** 269. 1828. (Type: St. Thomas, *Ehrenberg s.n.* (HAL!).)

Sida acuminata DC. var. *bracei* E. G. Baker, J. Bot. **30:** 295. 1892. (Type: Bahamas, New Providence, *Brace 436.*)

Sida paniculata L. var. *compacta* E. G. Baker, J. Bot. **30:** 295. 1892, nom. illegit. based on *Sida multiflora* Jacq.

Sidastrum acuminatum (DC.) Fryx., Brittonia **30:** 451. 1978.

Subshrub or shrub to 1.5 m tall; stems with yellowish stellate-pubescence. Leaves with petioles 0.4-1.5 cm long; blades ovate-elliptic, 3-6 × 2-3 cm, base truncate, apex acute, margin finely crenate-serrate, discolorous, minutely stellate-pubescent above and beneath. Flowers 1 to 3 per axil; pedicels slender, to 1 cm long; calyx 4-5 mm long, yellowish-pubescent; corolla 5 mm long, yellow; androecium included. Fruits oblate, 4-5 mm in diameter, stellate-pubescent; mericarps 8 to 10, fragile-walled.

GENERAL DISTRIBUTION: West Indies and Venezuela to northern Argentina.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts!, Antigua!, St. Kitts, Montserrat!, Guadeloupe!.

THESPESIA Sol. ex Corr. Serr.

Thespesia Sol. ex Corr. Serr., Ann. Mus. Natl. Hist. Nat. **9:** 290, *t. 8, fig. 2.* 1807, nom. cons.

Shrubs or more commonly trees, glabrous or pubescent, usually punctate. Leaves petiolate; blades ovate or trilobulate, apex obtuse to acuminate, margin entire, often with abaxial foliar nectaries. Flowers large and showy, borne singly on axillary peduncles (sometimes aggregated apically), sometimes with bracteate articulation; involucel of 3 to many elements, sometimes subtended by trimerous nectaries; calyx truncate or 5-lobed; petals white, yellow, or rose, with or without dark spot at base; staminal column usually included, pallid; style single, stigmatic lobes decurrent. Fruits capsular, 3- to 5-celled, coriaceous or ligneous, dehiscent or indehiscent; seeds several per locule, glabrous or pubescent.

TYPE: *Thespesia populnea* (L.) Sol. ex Corr. Serr.

A genus of 17 species from New Guinea, Asia, Africa, and the West Indies, with the type nearly pantropical in littoral habitats.

CULTIVATED SPECIES

Thespesia lampas (Cav.) Dalz. ex Dalz. & Gibson was formerly cultivated in the St. Pierre Botanic Garden, Martinique.

Thespesia populnea (L.) Sol. ex Corr. Serr., Ann. Mus. Natl. Hist. Nat. **9:** 290, *t. 8, fig. 2.* 1807. FIGURE 97.

Basionym: *Hibiscus populneus* L., Sp. Pl. **2:** 694. 1753.
Type: Ceylon, Herb. Hermann, vol. 4, fol. 34, LINN 258 (lectotype, BM); designated by Borssum Waalkes, Blumea **14:** 108-109. 1966.

Large shrub or small tree, 3-7 m tall; stems minutely lepidote to glabrate. Leaves with petioles 3.5-6 cm long; blades ovate, 5-18 × 3-11 cm, base deeply cordate, apex acuminate, margin entire, coriaceous, glabrous above, glabrate beneath, with elongated nectariferous zone on midrib beneath. Flowers axillary, usually solitary, with peduncles 1-5 cm long; involucel of 3 ligulate bracts, these often exceeding the calyx, deciduous leaving scars; calyx truncate, 6-9 mm long, lepidote; petals 4-6 cm long, yellow, with or without purple spot at base; androecium columnar, 1.5-2 cm long, antheriferous throughout, yellowish; styles clavate, exceeding androecium. Capsules oblate, ca. 3 cm in diameter, indehiscent, minutely lepidote.

GENERAL DISTRIBUTION: Pantropical in littoral habitats; often planted elsewhere as an ornamental shade tree.

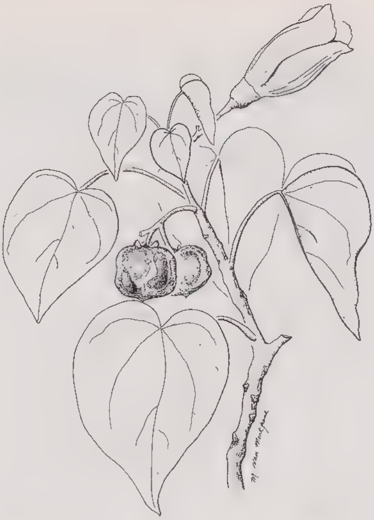
DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts, Antigua!, Saba, St. Eustatius, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent, the Grenadines, Grenada!, Barbados!.

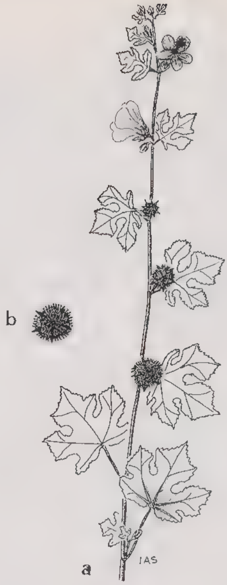
COMMON NAMES: Catalpa, calfata, cork tree, spanish cork, emajaguilla, palo de jaqueca, Santa Maria, bendy-tree, seaside mahoe, anodyne, John bull tree, head-ache tree, maho bód lanmè, mahot bord-de.

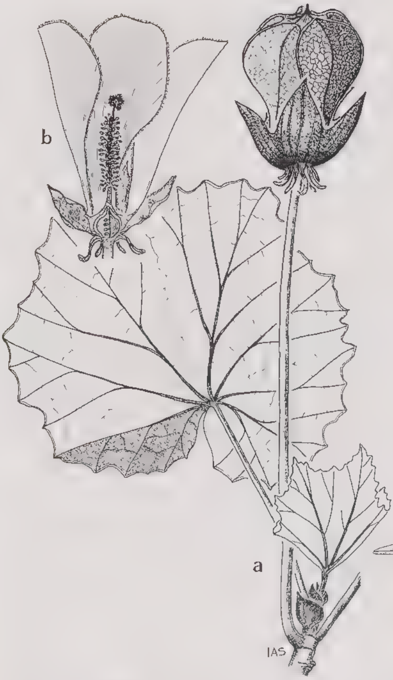
URENA L.

Urena L., Sp. Pl. **2:** 692. 1753.

Shrubs 0.5-2 m tall, more or less stellate-pubescent. Leaves variable; blades often 3 to 5-angled, -lobed, or -parted, less often ovate, oblong, or lanceolate, margin serrate, with one or more prominent foliar nectaries on adaxial surface. Flowers solitary or glomerulate in axils, or forming terminal racemes;







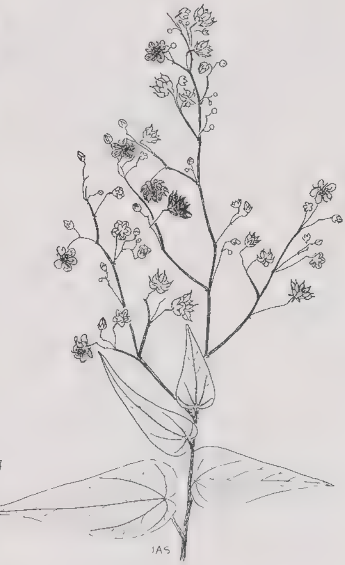


FIGURE 97 (upper left). *Thespesia populnea*, × 0.35. FIGURE 98 (upper right). *Urena sinuata*: a, habit, × 0.35; b, fruit, × 0.35. FIGURE 99 (lower left). *Wercklea tulipiflora*: a, fruiting branch, × 0.35; b, longitudinal section of flower, × 0.35. FIGURE 100 (lower right). *Wissadula periplocifolia*, × 0.35.

peduncles usually short; involucel 5-lobed, the lobes alternate with lobes of calyx; calyx 5-lobed; petals rose or lavender; androecium included, the filaments short; styles 10, slender, stigmas capitellate. Fruits schizocarpic, 5-lobed, the lobes convex; mericarps 5, prominently glochidiate (in ours), essentially indehiscent; seeds solitary, glabrous.

LECTOTYPE: *Urena lobata* L; see Hochreutiner, Annuaire Conserv. Jard. Bot. Genève **5:** 131-146. 1901.

A genus of ca. six species, principally South American, but with two species nearly pantropical.

KEY TO THE SPECIES

Leaves palmately parted (except juvenile leaves), the sinuses broadly rounded; calyx 4-5 mm long; petals 10-18 mm long . . . . *U. sinuata*
Leaves ovate, angulate, or shallowly lobed; calyx 5-9 mm long; petals 18-20 mm long . . . . *U. lobata*

Urena lobata L., Sp. Pl. **2:** 692. 1753.

Type: LINN 873.1 (holotype, as microfiche!); isotype, S, IDC 5075. 287: III. 3, photo!.
Syn.: *Urena americana* L. f., Suppl. Pl. 308. 1782. (Type: Surinam, *Dahlberg s.n.* (holotype, LINN 873.7, as micro-fiche!; isotype, S, IDC 5075. 288: I. 1, photo!).)
Urena grandiflora DC., Prodr. **1:** 442. 1824. (Type: Icones Florae Mexicanae s.n.! (Torner Collection acc. no. 6331. 1547, Hunt Institute).)
Urena trilobata Vell. Conc., Fl. Flumin. 286. 1829; **7:** *t. 44.* 1831. (Type: unknown.)
Urena lobata L. var. *americana* (L. f.) Gürke *in* C. Martius, Fl. Bras. **12**(3): 471. 1892.

Shrubs to 2 m tall; stems minutely stellate-pubescent. Leaves with petioles 0.5-7.5 cm long, pubescent like stem; blades ovate, angulate, or shallowly lobed, 1-12 × 1-12 cm, base truncate to cordate, apex acute, sinuses narrow, margin irregularly serrate, discolorous, minutely stellate-pubescent above and beneath, with small but prominent nectary at base of midrib beneath (sometimes several on principal veins); stipules subulate, 3-5 mm long. Flowers axillary, usually solitary; peduncles shorter than subtending petioles; involucellar bracts 5, 6-8 mm long, connate basally, the lobes linear-lanceolate to triangular; calyx slightly shorter than to equaling the involucel; petals 18-20 mm long, lavender; androecium with anthers subsessile on column, purplish. Fruits oblate, 8-10 mm in diameter, prominently glochidiate.

GENERAL DISTRIBUTION: Nearly pantropical and often weedy, occurring in Central and South America, in the paleotropics, and occasionally as an adventive in temperate regions.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia, St. Vincent, Grenada, Barbados.

COMMON NAMES: Grand cousin, mahot cousin, cousin petit, cousin rouge, cooze mahot.

Urena sinuata L., Sp. Pl. **2:** 692. 1753. FIGURE 98.

Lectotype: Ceylon, Herb. Hermann, vol. 4, fol. 34, LINN 257 (BM); designated by Borssum Waalkes, Blumea **14:** 142. 1966.

Syn.: *Urena paradoxa* Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 216 (ed. folio), 278 (ed. quarto). 1822. (Type: prope Atures, ad ripam Orinoco, *Humboldt & Bonpland 872* (holotype, P; IDC 6209. 131: I. 4, photo!).)

Urena morifolia DC., Prodr. **1:** 442. 1824. (Type: in insulis Amicorum, *s. coll. s.n.* (holotype, G-DC; IDC 2562. 195: II. 2, photo!).)

Urena muricata DC., Prodr. **1:** 442. 1824. (Type: Bengal, *Leschenault s.n. (holotype, G-DC;* IDC 2562. 195: II. 3, photo!).)

Urena swartzii DC., Prodr. **1:** 442. 1824, based on *Urena sinuata* L. sensu Sw. (Type: Surinam.)

Urena lobata L. var. *sinuata* (L.) Hochr., Annuaire Conserv. Jard. Bot. Genève **5:** 141. 1901.

Urena lobata L. ssp. *sinuata* (L.) Borssum Waalkes, Blumea **14:** 142. 1966.

Shrub to 1(-2) m tall; stems minutely stellate-pubescent. Leaves with petioles 0.5-6.5 cm long; blades deeply 3- to 5-lobed, 3-4(-6) × 3-6 cm, lobes constricted basally, base truncate to subcordate, apex acute, sinuses broadly rounded, margin serrate, discolorous, stellate-pubescent above and beneath, sparsely so above, the hairs sometimes simple, with 1 to 3 (to 5) small but prominent nectaries at base of principal veins beneath; stipules subulate, 2-3 mm long. Flowers axillary, solitary; peduncles shorter than subtending petioles; involucellar bracts 5, 3-5 mm long, connate basally, the lobes linear-lanceolate; calyx subequal to involucel; petals 10-18 mm long, rose. Fruits oblate, 6-8 mm in diameter, prominently glochidiate.

GENERAL DISTRIBUTION: Nearly pantropical and often weedy.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique, St. Lucia!, St. Vincent!.

COMMON NAMES: Petit mahot-cousin, cousin petit, matérebe, pikan kouzen, piquant cousi.

WERCKLEA Pittier & Standley

Wercklea Pittier & Standley *in* Standley, Contr. U.S. Natl. Herb. **18:** 112. 1916.

Coarse herbs, shrub, or trees to 20 m tall, stellate-pubescent to glabrate; stems cicatricose, sometimes prickly. Leaves with petioles shorter than to longer than blades, pubescent like stem; blades large, more or less orbiculate in outline, sometimes pentangular or slightly lobed, base deeply cordate, apex obtuse to acute, margin remotely dentate to subentire, stellate-pubescent to glabrate, sometimes prickly; stipules large and prominent, sessile, 5-80 × 5-45 mm, apex acute or obtuse, margin entire, caducous leaving scars to 1.5 cm long. Flowers one to several per axil; peduncles erect, shorter than to much longer than subtending petioles, woody in fruit, sometimes spinescent; involucellar bracts distinct (3 to 10) or gamophyllous, shorter than calyx, deciduous or persistent; calyx deeply 5-parted or spathaceous and 5-toothed, sometimes inflated in fruit, sometimes prickly; corolla 6-15 cm long, usually yellow or rose; androecium columnar, shorter than to equaling corolla; styles connate nearly throughout, stigmas 5, capitate. Fruits capsular, 5-celled, dehiscent, winged or unwinged, glabrous, pubescent, or hispid; seeds numerous, 2.5-4 mm long, glabrous or pubescent.

TYPE: *Wercklea insignis* Pittier & Standley.

An American genus of 12 species occurring principally around the margins of the Caribbean Sea, with one species extending beyond this region in western South America. *Wercklea* is one of the few arborescent genera of Malvaceae and commonly occurs in relatively wet habitats (river banks, rain forests, and cloud forests).

Wercklea tulipiflora (Hook. f.) Fryx., J. Arnold Arbor. **62:** 476. 1982. FIGURE 99.

Basionym: *Hibiscus tulipaeflorus* Hook. f., Icon. Pl. ser. 2, **4:** *t. 707, 708.* 1845. Type: Dominica, Couliban Mtns., *Imray 251* (holotype, K-2 sheets!).
Syn.: *Abelmoschus tulipaeflorus* (Hook. f.) Walp., Rep. Bot. Syst. **5:** 92. 1845.
Hibiscus tulipiferus Regel, Cat. Pl. Hort. Arsakov. 71. 1860. (Type: not designated.)

Tree 3-10 m tall; stems minutely pubescent to glabrate. Leaves with petioles 8-12 cm long; blades indistinctly pentangular to suborbiculate, 15-24 cm long, broader than long, base deeply cordate, apex obtuse to subacute, margin irregularly and coarsely crenate-dentate, markedly discolorous, minutely stellate-pubescent. Flowers with peduncles 6-27 cm long, stout (5-6 mm in diameter) and woody in fruit, stellate-pubescent to glabrate; involucellar bracts 6 or 7, distinct, lanceolate to subrhomboid, 2-5 cm long, 6-13 mm wide, apex acute; calyx 3-5.5 cm long, more than half-divided, the lobes 3- to 5-nerved, sparsely and minutely stellate-pubescent; petals 7-10 cm long, pale yellow, externally stellate-pubescent throughout; staminal column somewhat shorter than petals, staminiferous nearly throughout length. Capsules usually stipitate and broadly obovoid, 4-5.5 cm long, prominently winged, beaked, reticulate-veined, densely stellate-pubescent.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia.

COMMON NAMES: Gombo grand bois, gambo montagne, gambo marron.

WISSADULA Medikus

Wissadula Medikus, Malvenfam. 24. 1787.

Herbs or subshrubs, usually erect, stellate-pubescent or sometimes glabrate.

Leaves long- or short-petiolate; blades broadly ovate to narrowly triangular, margin entire or crenate-dentate. Flowers sometimes solitary in axils, usually in condensed or open terminal panicles; involucel absent; calyx 5-lobed, usually small; petals usually small, yellowish; androecium included; styles 3 to 6, slender, stigmas capitate. Fruits schizocarpic but septicidal dehiscence often incomplete (the fruit thus pseudocapsular); mericarps 3 to 6, divided into indehiscent lower cell and dehiscent upper cell by a constriction, apically acute to apiculate; seeds (1 to) 3 with 1 in lower cell and usually 2 in upper cell, the lower seed relatively densely pubescent, the upper seeds less so.

TYPE: *Wissadula zeylanica* Medikus, nom. illegit. based on *Sida periplocaefolia* L. (= *Wissadula periplocifolia* (L.) C. Presl).

A genus of Africa and South America extending northward to West Indies and Mexico, one species reaching southern Texas. The genus has recently been restricted by the exclusion of *Allowissadula* Bates and *Bastardiastrum* (Rose) Bates, making the residual genus *Wissadula* smaller and less artificial than previously circumscribed.

KEY TO THE SPECIES

1. Leaves with petioles to 1.5 cm long, shallowly cordate, more than twice as long as wide, subtriangular, margins relatively straight .... *W. periplocifolia*
1. Leaves with petioles 4-7 cm long, deeply cordate, less than twice as long as wide, orbiculate- or ovate-acuminate, margins curved throughout.
    2. Inflorescence an open, diffuse panicle; pedicels many times longer than fruit .... *W. amplissima*
    2. Inflorescences contracted and crowded; pedicels subequal in length to fruit .... *W. contracta*

Wissadula amplissima (L.) R. E. Fries, Kongl. Svenska Vetenskapsakad. Handl. **43**(4): 48. 1908.

Basionym: *Sida amplissima* L., Sp. Pl. **2:** 685. 1753.

Syn.: *Sida hernandioides* L'Hér., Stirp. Nov. **2:** 121, *t. 58.* 1789. (Type: cult. Hort. Paris, in 1783, from seed sent by J. F. Duchemin de Lestang from Hispaniola (holotype, G-DC; IDC 2562. 203: III. 4, photo!).)
Abutilon hernandioides (L'Hér.) Sweet, Hort. Brit. ed. **1:** 53. 1826.
Wissadula hernandioides (L'Hér.) Garcke, Z. Naturwiss. **63:** 124. 1890.
Abutilon amplissimum (L.) Kuntze, Revis. Gen. Pl. **3**(2): 17. 1898.

Shrub to 2 m tall, usually branched below the inflorescence, with stipitate stellate hairs and also minutely puberulent. Leaves with petioles 4-6 cm long; blades ovate, 4-12 × 5.5-8 cm, base deeply cordate, apex acuminate, margin rounded, entire, discolorous. Inflorescences open terminal panicles, more or less leafless. Flowers long-pedicellate; calyx 3 mm long, ca. half-divided; petals 5 mm long, yellowish; androecium included, yellowish, the filaments longer than column. Fruits with mericarps 3 to 5, 6-7 mm long, constricted below, bulbous-apiculate above, minutely puberulent; seeds 3, 2.5 mm long, patchily pubescent.

GENERAL DISTRIBUTION: From Texas and the West Indies to northern South America and parts of Africa.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe (fide Urban), Martinique (fide Fournet).

COMMON NAME: Pichana.

NOTE: Numerous other synonyms are cited by Fries (loc. cit.).

Wissadula contracta (Link) R. E. Fries, Kongl. Svenska Vetenskapsakad. Handl. **43**(4): 60. 1908.

Basionym: *Sida contracta* Link, Enum. Hort. Berol. Alt. **2:** 204. 1822.
Type: Madagascar, grown in the Berlin Botanic Garden (B, destroyed).
Syn.: *Sida luciana* DC., Prodr. **1:** 468. 1824. (Type: St. Lucia, *Anderson s.n.* (holotype G-DC; IDC 2562. 203: III. 5, photo!).)
Abutilon contractum (Link) Sweet, Hort. Brit. ed. **2:** 64. 1830.
Abutilon lucianum (DC.) Sweet, Hort. Brit. ed. **2:** 64. 1830.
Wissadula luciana (DC.) Benth. ex Triana & Planchon, Ann. Sci. Nat. Bot. ser. 4, **17:** 188. 1862.

Subshrub to 2 m tall, usually unbranched below the inflorescence, with stipitate stellate hairs and also minutely puberulent. Leaves with petioles 4-7 cm long; blades broadly ovate, 4-12 × 2-10 cm, base deeply cordate, apex acuminate, margin curved, entire, discolorous. Inflorescences compact, racemiform panicles, more or less leafless. Flowers short-pedicellate; calyx 3-3.5 mm long, ca. half-divided; petals 4-7 mm long, white; androecium included, yellowish, pubescent, the filaments longer than column. Fruits with mericarps 5, 5-6 mm long, weakly constricted below, bulbous-apiculate above, minutely puberulent; seeds 3, 2 mm long, patchily pubescent.

GENERAL DISTRIBUTION: Central America (Honduras, Guatemala), South America (Brazil, British Guiana, Venezuela), West Indies, and sporadically around the Indian Ocean (introduced and naturalized).

DISTRIBUTION IN LESSER ANTILLES: St. Lucia!, Grenada.

NOTES: The type was grown in the Berlin Botanic Garden from seed from Madagascar. It is notable that Hochreutiner (Fl. Madagascar, 1955) did not cite this species. I follow Fries' interpretation since he had examined the type (now destroyed) and explicitly stated that it conformed to the ampler material from South America and elsewhere. Fries (loc. cit.) cites a number of additional synonyms.

Wissadula periplocifolia (L.) C. Presl ex Thwaites, Enum. Pl. Zeyl. 28. 1858.
FIGURE 100.

Basionym: *Sida periplocifolia* L., Sp. Pl. **2:** 684. 1753.
Type: Herb. Hermann vol. 3, fol. 11, LINN 251 (holotype, BM).

Syn.: *Wissadula zeylanica* Medikus, Malvenfam. 25. 1787, nom. illegit. based on *Sida periplocifolia* L.
Abutilon periplocifolium (L.) Sweet, Hort. Brit. ed. **1:** 53. 1826.

Shrub 1-2 m tall, more or less branched, stellate-pubescent, the hairs frequently stipitate (especially on younger growth). Leaves with petioles to 1.5 cm long; blades ovate-triangular, 3-7 × 1-3 cm, base cordate, apex acute, margin straight, entire, markedly discolorous, glabrate above. Inflorescences open, more or less leafy panicles; calyx 2.5-3 mm long; petals 3-4 mm long, yellow or white, sometimes white with dark red basal spot; androecium included, the filaments longer than column. Fruits with mericarps 4 or 5, 5-6 mm long, constricted below, bulbous-apiculate above, minutely puberulent; seeds 3, 2.5 mm long, patchily to densely pubescent.

GENERAL DISTRIBUTION: South America, West Indies, Mexico, Central America, and tropical parts of Old World.

DISTRIBUTION IN LESSER ANTILLES: Martinique! (cultivated), the Grenadines!.

BOMBACACEAE

by Allan J. Bornstein

BOMBACACEAE Kunth, Malvac., Büttner., Tiliac. 5. 1822 ('Bombaceae').

Trees, armed or unarmed, glabrous or pubescent of stellate or simple hairs, or lepidote. Leaves alternate; blades simple or palmately compound, margin entire or crenate; stipules present, fugacious. Inflorescences axillary, cymose to fasciculate, or the flowers solitary. Flowers regular, perfect, often quite large, 5-merous; calyx valvate or irregularly circumscissile, lobate or truncate, persistent or caducous; petals contorted, adnate to base of staminal column; stamens 5 to numerous, monadelphous, staminal column divided into distinct filaments or only 5-lobed with distinct filaments lacking, anthers distinct or confluent, straight or anfractuose, 1-thecate, extrorse, longitudinally dehiscent; ovary superior to subinferior, 2- to 5-locular, ovules 2 or many per locule, placentation axile, style simple, filiform, stigma capitate, discoid, lobed, or spirally sulcate. Fruit a capsule, 5-valvate, or indehiscent and drupaceous; seeds glabrous, often embedded in long, fibrous hairs derived from ovary wall (=kapok).

TYPE: *Bombax* L.

A pantropical family of approximately 25 genera and over 150 species. Three genera are native in the Lesser Antilles, one is introduced but apparently more or less naturalized (*Pachira*), and four others, *Adansonia*, *Bombax*, *Durio*, and *Pseudobombax* have been introduced and occur only sporadically in cultivation. An economically important family, at least locally, for the woolly fibers of some species called kapok (*Ceiba* and *Ochroma*), for edible seeds (*Adansonia*, *Durio*, and *Pachira*), and as the source of the well-known balsa wood (*Ochroma*). For useful treatments of this family, including extensive synonymy, see A. Robyns, Bull. Jard. Bot. État **33:** 1-316. 1963, and Ann. Missouri Bot. Gard. **51:** 37-68. 1964.

CULTIVATED TAXA

Adansonia digitata L., the famous baobab tree of Africa and Madagascar, has been reported from Antigua, St. Eustatius, Guadeloupe, Martinique, and the Grenadines (Mustique), and I have seen a collection from St. Kitts (*Wadsworth 579*, 2 sheets at A!). It is undoubtedly introduced wherever it occurs in the New World. It is most similar in general appearance to *Pachira* and *Ceiba* in possessing palmately compound leaves and a staminal column that eventually divides into distinct filaments (many as in *Pachira*). It is easily distinguished by the massive trunk and the solitary, long-peduncled, pendant flowers that produce an indehiscent fruit.

Bombax ceiba L., a native of the Asian tropics, is occasionally encountered in cultivation in the New World. A single collection from the Botanic Garden on Basse Terre in Guadeloupe (*Howard 19800*, at A!) is known. This species resembles *Pachira insignis* (Sw.) Sauv. but differs in having smaller flowers, fewer and shorter stamens, and a caducous (vs. persistent) calyx.

Durio zibethinus Murray, the 'Durian' of southeast Asia, was cultivated in the Botanic Garden on Dominica where it was collected in 1938 (*Hodge 941*). It resembles *Quararibea* and *Ochroma* in its simple leaves, but is readily identified by the dense lepidote indument on the lower surface of the leaves and the spiny fruits (woody capsules) with malodorous arils surrounding the seeds.

Pseudobombax ellipticum (Kunth) Dugand was collected on Grenada in 1906 (*Broadway 1892*, at NY). According to Robyns (1963) this species is native to Mexico, Central America, and Cuba, and is cultivated elsewhere including the Antilles, Hawaii, and India. The genus is distinguished by its palmately compound leaves with inarticulate leaflets.

NOTE: Considerable discussion regarding the typification of genera in the Bombacaceae, especially *Bombax* and *Ceiba*, has appeared in the pages of Taxon. Without attempting to summarize the relevant arguments and conclusions of the various authors involved, the reader is referred to the following interesting articles, which from a broad perspective address some of the problems encountered when applying the rules and recommendations of the ICBN to pre-ICBN literature:

Robyns, A. 1961. Contribution a l'étude monographique du genre *Bombax* s.l. II. La typification de *Bombax ceiba* L. Taxon **10:** 156-160.

Nicolson, D. H. 1979. Nomenclature of *Bombax, Ceiba* (Bombacaceae) and *Cochlospermum* (Cochlospermaceae) and their type species. Taxon **28:** 367-373.

Wilbur, R. L. 1981. The unnecessary conservation of generic lectotypes. Taxon **30:** 39-42.

Key to the Genera

1. Leaves palmately compound; staminal column divided into distinct filaments, 5 or many.
   2. Staminal column divided into many filaments (450+), each with a single, oblong-linear anther; flowers large, 15+ cm long; seeds few, angular, large, < 2 × 2 × 2 cm. . . . . *Pachira*
   2. Staminal column divided into 5 filaments, each with 2 or 3 anfractuose anthers; flowers small, < 4 cm long; seeds numerous, subglobose, ca. 5 × 5 mm. . . . . *Ceiba*
1. Leaves simple; staminal column undivided or shortly 5-lobed, distinct filaments lacking.
   3. Leaves broadly ovate to suborbiculate, palminerved, often 3- to 5-lobed, base cordate to truncate; petals 11-15 cm long; anthers to 5 cm long, confluent, anfractuose; stigma spirally sulcate; fruits elongate, dehiscent . . . . *Ochroma*
   3. Leaves elliptic, penninerved, unlobed, base acute to rounded; petals to 5 cm long; anthers to 2 mm long, free, straight; stigma discoid; fruits subglobose, indehiscent . . . . *Quararibea*

CEIBA Miller

Ceiba Miller, Gard. Dict. abr. ed. 4. 1754.

Syn.: *Eriodendron* DC., Prodr. **1:** 479. 1824, nom. illegit. for *Ceiba* Miller.

Large deciduous trees, often buttressed, armed with stout prickles on young branches and trunks, or not. Leaves petiolate, palmately compound; leaflets 5 to 9, short-petiolulate, the blades often denticulate toward apex. Inflorescences crowded near branch apices, often appearing before the leaves, flowers cymose-fasciculate. Flowers with calyx valvate, campanulate, irregularly lobate, persistent; staminal column divided into five filaments, each bearing 2 or 3 distinct, anfractuose anthers; ovary slightly subinferior, 5-locular, ovules many per locule, stigma capitate. Fruit a capsule, loculicidally dehiscent, 5-valvate, ± woody; seeds numerous, imbedded in abundant woolly fibers (=kapok).

LECTOTYPE: *Ceiba pentandra* (L.) Gaertner (*Bombax pentandrum* L.). See Gaertner, Fruct. Sem. Pl. **2:** 244. 1791, and Nicolson, Taxon **28:** 369. 1979.

A genus of approximately 10 species, pantropical in distribution, but apparently native only in the New World tropics.

Ceiba pentandra (L.) Gaertner, Fruct. Sem. Pl. **2:** 244, *t. 133.* 1791.

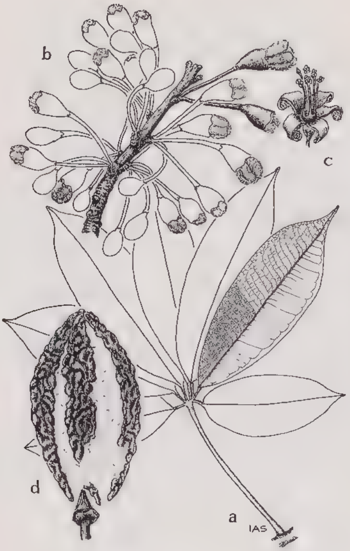
FIGURE 101.

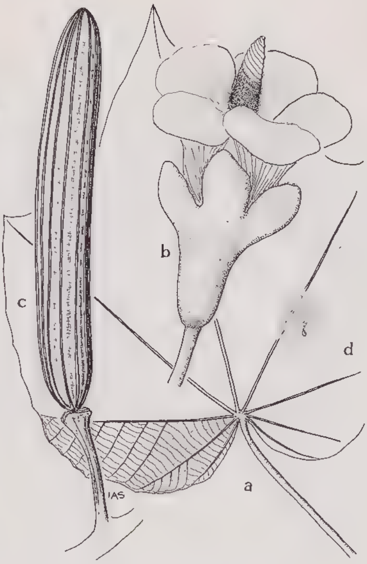
Basionym: *Bombax pentandrum* L., Sp. Pl. 1: 511. 1753.

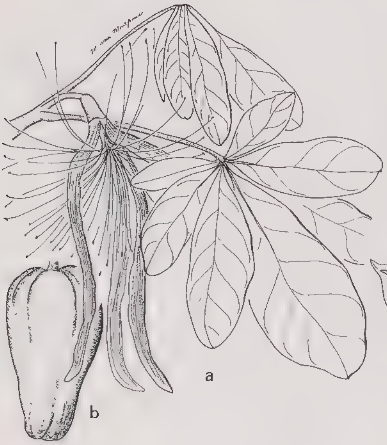
Lectotype: Rheede, Hort. Malab. **3:** 59, *t. 50.* 1682; see Nicolson, Taxon **28:** 369. 1979.

Syn.: *Eriodendron anfractuosum* DC. var. *caribaeum* DC., Prodr. **1:** 479. 1824. (Type: Guadeloupe, *Bertero s.n.* (holotype, G-DC; IDC 2562. **207:** I. 5, photo!).)

Bombax occidentale Sprengel, Syst. Veg. ed. 16, **3:** 124. 1826, nom. nov. for *Bombax pentandrum* sensu Jacq.







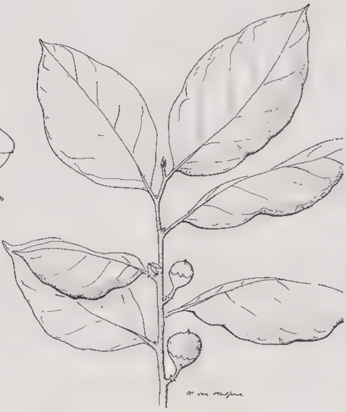


Figure 101 (upper left). *Ceiba pentandra*: a, leaf, × 0.3; b, inflorescence, × 0.3; c, flower, × 0.3; d, fruit, × 0.3. Figure 102 (upper right). *Ochroma pyramidale*: a, portion of leaf, × 0.15; b, flower, × 0.3; c, fruit, × 0.3; d, seed, × 0.3. Figure 103 (lower left). *Pachira insignis*: a, flowering shoot, × 0.3; b, fruit, × 0.15. Figure 104 (lower right). *Quararibea turbinata*, × 0.3.

Bombax orientale Sprengel, Syst. Veg. ed. 16, **3:** 124. 1826, nom. illegit. for *Bombax pentandrum* L.
Eriodendron caribaeum (DC.) Don ex Loudon, Hort. Brit. 292. 1830.
Eriodendron occidentale (Sprengel) Don, Gen. Hist. **1:** 513. 1831.
Ceiba anfractuosa (DC.) M. Gómez *in* M. Gómez & Roig, Fl. Cuba 66. 1914.
Ceiba pentandra (L.) Gaertner var. *caribaeum* (DC.) Bakh., Bull. Jard. Bot. Buitenzorg, sér. 3, 6: 196. 1924.
Ceiba occidentalis (Sprengel) Burkill, Bull. Misc. Inform. 317. 1935.
Ceiba caribaea (DC.) A. Chev., Rev. Int. Appl. Agric. Trop. **17:** 266. 1937.

Large tree to 25 m tall or more; trunk diameter at breast height to ca. 2 m, glabrous. Leaves with petioles 4.8-25.5 cm long, glabrous; leaflets with petiolules 0.2-1 cm long, blades oblong to oblong-lanceolate, 4-19 × 1.5-5.6 cm, base narrowly cuneate to attenuate, apex abruptly acuminate to caudate, glabrous. Flowers with pedicels 1.7-3.5 cm long, glabrous; sepals 0.8-1.5 cm long, glabrous without, silky villous within; petals oblong-obovate, ca. 2.6 cm long, apex rounded, silky villous without except near base, pubescent within near apex; staminal column 5-6 mm long, filaments 2-2.5 cm long; ovary ± globose, glabrous, style 3.5-4 cm long. Fruits oblong to ellipsoid, > 10 cm long; seeds ovoid to subglobose, 5-6 mm long; kapok gray-brown.

GENERAL DISTRIBUTION: Native from Mexico south to northern South America and the West Indies. Introduced and more or less naturalized in the Old World.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts, Antigua, St. Eustatius, Montserrat!, Guadeloupe, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines, Grenada!, Barbados.

COMMON NAMES: Silk cotton tree, fromager, mapou, mapou rouge, kapokier, pin tree, fonmajé.

NOTES: An important tree for the kapok of commerce used in stuffing mattresses, pillows, sleeping bags, etc. Principally harvested from cultivated trees in Southeast Asia (Thailand) and Indonesia. An oil extract from the seeds is also used for soapmaking and illumination, and the lightweight wood is sometimes used for making canoes.

OCHROMA Sw.

Ochroma Sw., Prodr. 97. 1788; Fl. Ind. Occid. **2:** 1143, *t. 23.* 1800.

Trees, occasionally buttressed, unarmed, young branchlets stellate-pubescent, soon glabrate. Leaves petiolate; blades simple or 3- to 5-lobed, cordate, entire to crenate-dentate, palminerved. Flowers solitary, grouped at ends of branchlets; calyx valvate, tubiform to funnelform, 5-lobed, the lobes unequal; staminal column elongate, cylindric, shortly 5-lobed, ca. the upper third to half antheriferous, distinct filaments lacking, anthers confluent, anfractuose; ovary superior, 5-locular, ovules many per locule, stigma slightly exceeding staminal column, spirally 5-sulcate. Fruit a capsule, loculicidally dehiscent, 5-valvate, ± woody; seeds numerous, small, embedded in abundant woolly fibers.

TYPE: *Ochroma lagopus* Sw. (= *Ochroma pyramidale* (Cav. ex Lam.) Urban).

A neotropical, monotypic genus ranging from southern Mexico to Bolivia, including the Greater and Lesser Antilles.

Ochroma pyramidale (Cav. ex Lam.) Urban, Repert. Spec. Nov. Regni Veg. Beih. **5:** 123. 1920. FIGURE 102.

Basionym: *Bombax pyramidale* Cav. ex Lam., Encycl. **2:** 552. April 1788.
Type: Antilles, Plumier mss. Vol. 4, *t. 8* (one of the original drawings, now at P).
Syn.: *Ochroma lagopus* Sw., Prodr. 98. July 1788; Fl. Ind. Occid. **2:** 1144. 1800. (Type: Jamaica, *Swartz s.n.* (holotype S, photo A!).)
Ochroma tomentosa Humb. & Bonpl. ex Willd., Enum. Pl. 695. 1809, nom. illegit. for *Ochroma lagopus* Sw.

Tree to 15 m tall or more; trunk diameter at breast height to ca. 1 m. Leaves with petioles to 25 cm long, stellate-pubescent to tomentose, glabrescent; blades broadly ovate to suborbiculate, 15-30 × 16.1-35+ cm, base cordate to less often truncate, apex acute to short-acuminate, primary and secondary veins quite prominent beneath, ± glabrous above, stellate-pubescent to tomentose beneath. Flowers with peduncles to 15+ cm long, stellate-pubescent, glabrate; sepals 6.4-8.5 cm long, 2 lobes triangular and acute, the other 3 flabelliform and rounded, conspicuously carinate, stellate-pubescent without, silky villous within; petals white to cream-colored, obovate to obovate-spatulate, 11.5-13 × 4.5-5 cm, near apex sparsely stellate-pubescent without and ± long-ciliate, ± glabrous within; staminal column 10-14 cm long, the upper 5+ cm antheriferous; ovary conical, stellate-pubescent, style 9-10 cm long, stigma 3-5 cm long. Fruits narrowly-oblong, 5-angled, 15-25 cm long and ca. 2.5 cm in diameter, densely stellate-pubescent to tomentose, black and glabrescent at maturity; seeds oblong-ovoid, 3-4 mm long; kapok pale brown.

GENERAL DISTRIBUTION: As for the genus.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts, Nevis, Montserrat!, Guadeloupe, Dominica!, Martinique, St. Lucia!, St. Vincent!, Grenada.

COMMON NAMES: Fromager-mapou, pripri, bois flot, bois flo, patte de lièvre, patte de lapin, balsa.

NOTES: There has been some confusion regarding the correct name for this species. Urban, when he made the combination *Ochroma pyramidale* (Cav. ex Lam.) Urban, on the basis of *Bombax pyramidale*, thought that the publication date of Lamarck's Encyclopedie Methodique, volume 2 was 1786 as indicated on the title page. In fact, the actual date of publication was April, 1788.

J. E. Little (Caribbean Forest. **5:** 108-115. 1944), in a generally excellent review of the nomenclature of this species, agreed with J. H. Pierce (Trop. Woods **69:** 1-2. 1942) that *O. lagopus* Sw. should have priority over *O. pyramidale*, primarily on the basis that the exact date of publication of Swartz's Prodromus was not known, and that "unless and until it can be shown that Swartz's book was published after April 1788 the name *Ochroma lagopus* Swartz must be retained in use over *O. pyramidale* (Cav. [ex Lam.]) Urban."

Recently, W. Stearn (Taxon **29:** 1-13. 1980) has convincingly demonstrated that the publication date of Swartz's Prodromus is "some time between 20 June and 31 July 1788 and suggests that July 1788 should be accepted as its month of publication." This would clearly set the correct name of this species as *O. pyramidale* (Cav. ex Lam.) Urban, but Stearn curiously concludes that *O. lagopus* Sw. is the correct name for this species. Apparently Stearn thought that Urban made the combination on the basis of Cavanilles' publication of *Bombax pyramidale* (Diss. Bot. **5:** 294. 1788, late July). As I indicated above, Urban's combination is clearly made on the basis of the publication by Lamarck, even though he cited an incorrect date of publication and the author as Cav. *in* Lam. These bibliographic errors of citation do not invalidate the use of *O. pyramidale* (Cav. ex Lam.) Urban as the correct name for this species. (See article 33.2 of the ICBN).

As I have alluded to above, the actual author of the name *Bombax pyramidale* is Lamarck and not Cavanilles. Apparently, Lamarck had access to a manuscript by Cavanilles (probably the one used in his Diss. Bot. 5), which he clearly cites in his publication as 'Cav. mss.'. Therefore, the correct citation should be *Bombax pyramidale* Cav. ex Lam. When the combination is made in *Ochroma*, the citation should be *O. pyramidale* (Cav. ex Lam.) Urban, or simply *O. pyramidale* (Lam.) Urban.

The only monographic treatment of *Ochroma* is that of W. W. Rowlee (J. Wash. Acad. Sci. **9:** 157-167. 1919) in which he recognized nine species, including seven new to science. Since then, most botanists have questioned the validity of Rowlee's species, and in most recent publications concerning *Ochroma* only a single species is recognized. I have seen type material for all of Rowlee's species (except *O. concolor*) as well as that of *O. peruviana* I. M. Johnston (Contr. Gray Herb. **81:** 95. 1928), and I can not find any significant differences or discontinuities upon which to recognize segregate taxa. Therefore, it appears as though only one, albeit somewhat variable, species of *Ochroma* exists.

Balsa wood is the lightest of commercial timber. It is used primarily for making life rafts, life preservers, floats, toys, and as insulation. The kapok of this species, like that of *Ceiba pentandra*, is used for stuffing pillows and mattresses.

PACHIRA Aublet

Pachira Aublet, Hist. Pl. Guiane **2:** 725. 1775.

Evergreen trees, trunks occasionally buttressed, unarmed. Leaves petiolate, palmately compound; leaflets 5 to 9, short-petiolulate, entire. Flowers borne at ends of branchlets, solitary or paired; calyx valvate, broadly cupuliform (to narrowly campanulate or subtubiform), truncate, persistent; staminal column divided into 10 phalanges arranged in two whorls, each phalanx then divided into humerous distinct filaments, each bearing a single, oblong-linear anther; ovary superior, 5-locular, ovules many per locule borne on a central column, stigma 5-lobed. Fruit a capsule, longitudinally dehiscent, 5-valvate, woody; seeds several, large and angular.

TYPE: *Pachira aquatica* Aublet.

A neotropical genus of two species, native to continental America from southern Mexico to central South America. Introduced and more or less naturalized in the Antilles, and cultivated in Africa and Asia.

NOTE: Both species of *Pachira* have been reported for the Lesser Antilles and for that reason the following key is presented. However, only *Pachira insignis* (Sw.) Savigny is described in detail as only material corresponding to that species has been seen. Robyns (1963) assigns all of the Lesser Antillean material to this species, and it may be that the reports of *Pachira aquatica* Aublet in the region are misidentifications, especially since the two species are rather similar in general appearance.

KEY TO THE SPECIES

Calyx broadly cupuliform (≤ 2.5 cm wide), dark rust in color; petals red-brown to scarlet; stamens 450 to 700, filaments red-purple below, white above, anthers yellow . . . . *P. insignis*

Calyx narrowly campanulate to subtubiform (≤ 2 cm wide), yellow-gray in color (tawny); petals green, greenish white, or white; stamens 200 to 250, filaments white below, red-purple above, anthers red . . . . *P. aquatica*

Pachira insignis (Sw.) Savigny *in* Lam., Encycl. **4:** 690. 1798, pro parte excl. syn. *Bombax grandiflorum* Cav. FIGURE 103.

Basionym: *Carolinea insignis* Sw., Prodr. 101. 1788; Fl. Ind. Occid. **2:** 1202. 1800.
Neotype: Brazil, Amazonas, *Ducke 1211* (MO); see Robyns, Bull. Jard. Bot. État **33:** 250-252. 1963.
Syn.: *Pachira loddigesii* Decne., Fl. Serres Jard. Eur. **23:** 51. 1880. (Type: St. Vincent, *Anderson s.n.* (holotype, K!).)

Tree to 30 m tall; trunk diameter at breast height to 1 m, gray-green, glabrous. Leaves grouped toward end of branches, with petioles (10-)19.4-33.2 cm long, glabrous; leaflets with petiolules 0.5-1 cm long, blades obovate to elliptic, 10.2-34.6 × 5.1-14.1 cm, base cuneate to attenuate, apex rounded to obtuse, mucronulate to apiculate, glabrous above, glabrous beneath or sparsely lepidote with small reddish brown scales, or sparsely lepidote and puberulent, the hairs simple or occasionally stellate. Flowers with pedicels to 7 cm long, puberulent of simple and stellate hairs; calyx to ca. 3.5 cm long and wide, dark rusty red, short-pubescent to tomentose without of stellate and simple hairs, silky villous within; petals narrowly strap-shaped, (17-)27.3-33.4 cm long, apex acute to obtuse, red-brown to scarlet, densely short-pubescent to tomentose without, pubescent within; staminal column ca. 6-10 cm long, densely short stellate-pubescent, filaments unequal in length, 450 to 700, red-purple below, white above, anthers yellow; ovary subglobose, white-villous, style to 33 cm long. Fruits subglobose to ellipsoid, > 14 cm long and 9 cm in diameter, base rounded, apex acute; valves to ca. 1 cm thick, brown pubescent without, silky villous to pubescent within; seeds generally 4-angled, 2-2.5 cm long.

GENERAL DISTRIBUTION: Native to South America, especially northern Brazil, southern British Guiana, southwestern Colombia, and northwestern Peru. Apparently introduced and more or less naturalized in Venezuela, Trinidad and Tobago, the Lesser Antilles, and Puerto Rico.

DISTRIBUTION IN LESSER ANTILLES: Antigua, St. Kitts!, Guadeloupe!, Martinique!, St. Vincent!, Grenada.

COMMON NAMES: Cacao sauvage, châtaignier marron, châtaignier.

NOTE: In his unpublished Hortus, Alexander Anderson states that he brought the first plants to St. Vincent from Trinidad in 1796.

QUARARIBEA Aublet

Quararibea Aublet, Hist. Pl. Guiane **2:** 691. 1775.

Small trees, non-buttressed, unarmed. Leaves petiolate; blades simple, entire, penninerved. Flowers solitary, or few and fasciculate; calyx turbinate in bud, irregularly circumscissile (operculate) and hence irregularly lobed, accrescent; staminal column elongate, entire or apically 5-lobed, distinct filaments lacking, anthers sessile near apex of column, free or slightly confluent; ovary subinferior, 2- or 3-locular, ovules 2 per locule, stigma discoid. Fruits drupaceous, indehiscent, coriaceous and fibrous, commonly with only one locule developing; seeds 1 or less often 2 in remaining locule.

TYPE: *Quararibea guianensis* Aublet.

A tropical American genus of 30 to 50 species, occurring in southern Mexico, Central America, the West Indies, and northern South America. Only 1 species occurs in the Lesser Antilles.

Quararibea turbinata (Sw.) Poiret *in* Lam., Encycl. Suppl. **4:** 636. 1816.
FIGURE 104.

Basionym: *Myrodia turbinata* Sw., Prodr. 102. 1788; Fl. Ind. Occid. **2:** 1227. 1800. Syntypes: Montserrat, *Ryan s.n.* (BM, photo at A!); St. Kitts, *Masson s.n.* (BM, photo at A!); St. Lucia, *Anderson s.n.* (BM, photo at A!, and K!).

Tree 10-15 m tall; trunk diameter at breast height to 0.3 m; branches borne horizontally, several at a node. Leaves with petioles 0.5-1.5 cm long, glabrous; blades elliptic to slightly ovate-elliptic or obovate-elliptic, 5.7-28.2 × 3.1-12.4 cm, base cuneate to obtuse, apex acute to acuminate, glabrous, or occasionally with some simple hairs in axils of secondary veins beneath. Flowers borne on axillary short shoots; peduncles 1-6 mm long, lepidote-stellate; calyx 6-10 mm long, irregularly 2- or 3-lobed, green, stellate-puberulent or lepidote-stellate without, silky villous within; petals oblong-linear, 12-18 mm long, white or cream-colored, stellate-puberulent within and without; staminal column slightly shorter than petals, 10-15 mm long, stellate-puberulent, the upper 1-2 mm antheriferous; ovary unknown, style slightly longer than staminal column, 11-17 mm long. Fruits subglobose, broadly depressed obovoid to broadly depressed ovoid, 1.2-1.7 cm long and 1.4-2.2 cm in diameter; seed filling locule, similar in shape to fruit, of slightly smaller dimensions.

GENERAL DISTRIBUTION: Hispaniola south through the Lesser Antilles. Also reported from Surinam.

DISTRIBUTION IN LESSER ANTILLES: Antigua, St. Eustatius, St. Kitts!, Nevis, Montserrat, Guadeloupe(?), Marie Galante, Dominica!, Martinique!, St. Lucia!, St. Vincent, Grenada!, Barbados.

COMMON NAMES: Swizzlestick tree, swizzlestick wood, lélé, bois-lélé, millerwood.

NOTES: The dry foliage has a strong odor variously described as reminiscent of curry or the inner bark of the slippery elm. The twigs are used as swizzlesticks on some islands.

STERCULIACEAE

by Allan J. Bornstein

STERCULIACEAE Bartling, Ord. Nat. Pl. 255, 340. 1830, nom. cons.

Trees, shrubs, or herbs; pubescence usually stellate. Leaves alternate (rarely opposite), petiolate; blades simple or palmately lobed, entire to serrate or dentate; stipules present, generally deciduous. Inflorescences axillary, or less often terminal cymes, fasciculate, paniculiform, umbelliform, or thyrsiform, or the flowers solitary. Flowers regular, bisexual or unisexual; calyx normally of 5 sepals, partially connate, valvate; petals 5 or absent, free or adnate to staminal tube, commonly unguiculate, occasionally hooded and with appendages, contorted or involute; stamens 5 to 15, connate, commonly forming a staminal tube, occasionally on an androgynophore, staminodes often present and alternating with antipetalous fertile stamens, anthers bi- or rarely trithecate, extrorse, longitudinally dehiscent; gynoecium of 5 carpels, or reduced to a single carpel, syncarpous or less often apocarpous at maturity, ovary superior, sessile or elevated on an androgynophore, 5-locular with 2 to many ovules borne on axile placentae, or 1-locular with submarginal placentation, styles as many as carpels, distinct or variously connate, stigma entire or divided. Fruit a capsule, schizocarpic capsule, berry, follicle, or aggregate of follicles; seeds 1 to many per locule.

TYPE: *Sterculia* L.

A largely pantropical family of 65 to 70 genera and approximately 1000 species, occasionally extending into warm-temperate regions. Five (six?) genera are native to the Lesser Antilles. Several others, including the economically important genera *Theobroma* and *Cola*, (which are included in the key to genera and described in full because of their importance), are known in cultivation.

CULTIVATED TAXA

Several species have been reported in cultivation in the Lesser Antilles, many on the basis of a single collection. The following list is intended to be exhaustive. However, one should realize that it is quite possible that many of these taxa will not be found at the present time on any of the islands, especially since most of the reports are by Duss from specimens in the St. Pierre Botanic Garden on Martinique, which was destroyed by the eruption of Mt. Pelée in 1902.

Two species of *Abroma*, *A. fastuosa* Jacq. (cited as *A. fastuosa* Gaertner) and *A. augusta* (L.) L. f., were reported by Duss as being cultivated in the St. Pierre Botanic Garden. *A. fastuosa* Jacq. is a nomen illegitimate for *Theobroma augusta* L., the basionym of *A. augusta* (L.) L. f. Therefore, *A. augusta* (L.) L. f. is the correct name for this single species. Duss cited his collection numbers *2137* and *2036*, neither of which have been seen. This species is also known from St. Vincent (*Guilding s.n.*, K!), having been cultivated in the botanic garden. In his unpublished Hortus, Alexander Anderson indicated that he obtained seeds from Sir George Yonge in 1790, but doesn't say where they originated. No modern collections of this species are known from the Lesser Antilles, the genus being indigenous to the Old World from Asia to Australia.

Brachychiton acerifolium (Cunn. ex Don) F. Muell. (Fragm. **1:** 1. 1858), is known from a single sterile collection (*Howard 19633*) made from a tree in a botanical garden on the island of Montserrat. The genus is virtually restricted to Australia with 1 or 2 species also occurring in New Guinea. It most closely resembles *Sterculia*, but is distinguished on the basis of fruit and seed characters.

Byttneria scabra Loefl. ex L. is known from a collection made from a plant cultivated in the St. Vincent Botanic Garden (*Anderson s.n.*, K!, photo at A!), the seeds having been obtained by Anderson from ''La Bray,'' Trinidad. The species is native to South America as far south as Argentina-Uruguay (see C. L. Cristobal, Bonplandia **4:** 240-249. 1976). No modern collections are known from the Lesser Antilles.

Commersonia bartramia (L.) Merr. (Interpr. Herb. Amboin. 362. 1917) was cultivated at the St. Pierre Botanic Garden where it was collected in April of 1903 after the eruption of Mt. Pelée (Mouret 343, P). The specimen was originally identified as *C. echinata* Forster & Forster f., which is considered to be a synonym of *C. bartramia*. The species is native to the Old World from southeast Asia, through Indomalaysia, to Australia-New Caledonia, and other than the Mouret collection is unknown from the New World.

Two species of *Dombeya* are recorded by Duss, *D. mollis* Hook. (as Cav.), and *D. wallichii* (Lindley) Benth. & J. D. Hook. (as *Astrapaea wallichii* Lindley). The genus is native to Africa, Madagascar, and the Mascarene Islands, and certain species are known to be cultivated here and there in the New World (e.g., see A. Liogier, Fl. Española **6:** 209. 1982). No known collections exist from the Lesser Antilles.

Heritiera littoralis Dryander (*in* Aiton, Hort. Kew **3:** 546. 1789) is reported by Duss as being cultivated in the St. Pierre Botanic Garden (*Duss 2025*). The species is native from east Africa to India, southeast Asia, Indomalaysia, Australia, and the Pacific Islands. It is otherwise unknown from the New World.

Herrania albiflora Goudot (Ann. Sci. Nat. Bot., sér 3, **2:** 230. 1844) is also reported by Duss in cultivation from the St. Pierre Botanic Garden, but apparently he did not make a collection. The species is native to Colombia, the genus being strictly South American in distribution (see R. E. Schultes, Caldasia **2**(9): 325-336. 1944).

Kleinhovia hospita L., a species native to the Old World tropics, has been cultivated in the Lesser Antilles for its unusual bladderlike fruits. Two collections from the Roseau Botanic Garden on Dominica have been seen (*Hodge 904* and *Honeychurch 231*), and Duss records the species as occurring on Martinique (and/or Guadeloupe?).

Pterospermum acerifolium (L.) Willd. (Sp. Pl. **3:** 729. 1800), is cited by Questel for the French Islands. The species is native from northeast India through Burma to Malaysia. No modern collections are known from the New World.

NOTE: *Helicteres jamaicensis* Jacq. (Enum. Syst. Pl. 30. 1760), a species native to the Bahamas and Greater Antilles, was reported for St. Martin by Boldingh. This collection (*Boldingh 501*, U) has not been seen, and no modern collections of this species from the Lesser Antilles are known.

KEY TO THE GENERA

1. Leaves opposite . . . . *Endosteira*
1. Leaves alternate.
    2. Petals absent; gynoecium apocarpous, at least at maturity; fruit an aggregate of follicles.
        3. Anther loculi irregularly arranged at the apex of the androphore; seeds with endosperm . . . . *Sterculia*
        3. Anther loculi regularly arranged in two superposed whorls; seeds without endosperm . . . . *Cola*
    2. Petals present, 5; gynoecium syncarpous or reduced to a single carpel; fruit a capsule, schizocarpic capsule, berry, or follicle.
        4. Staminodes 5; petals hooded, each with an apical or subapical appendage, deciduous.

5. Subshrubs; androgynophore present; petals adnate to the apex of the staminal tube; stamens 5, each with a single trithecate anther .... *Ayenia*
5. Trees; androgynophore absent; petals free; stamens 10 or 15, arranged in 5 groups, each group with 2 or 3 bithecate anthers.
   6. Petal limb extended at the apex into a liguliform, deeply bifid appendage; fruits < 3 cm long, muricate; calyx of 3 sepals... *Guazuma*
   6. Petal limb extended at the apex into an attenuate-spatulate, entire appendage; fruits > 10 cm long, smooth to rugose; calyx of 5 sepals .... *Theobroma*

4. Staminodes absent; petals flattened throughout, not hooded, appendages lacking, withering and persistent in fruit.
   7. Corolla orange to yellow; gynoecium unicarpellate, style 1, stigma plumose; fruit a follicle............................. *Waltheria*
   7. Corolla pink to purple; gynoecium 5-carpellate, styles 5, stigmata subulate; fruit a capsule...................................... *Melochia*

AYENIA L.

Ayenia L., Köngl. Svenska Vetensk. Acad. Handl. **17:** 24. 1756.

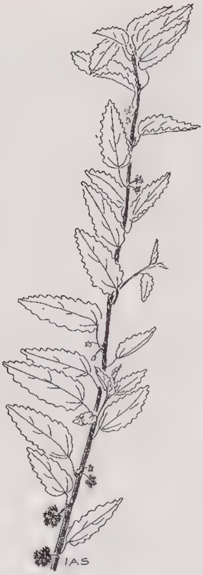
Decumbent subshrubs, pubescent. Leaves alternate, small, simple, dentate to serrate; stipules subulate, ± persistent, pubescent. Flowers axillary, solitary or in fascicles of 2 or 3, bisexual; calyx of 5 sepals; petals 5, slender-clawed, the limb hooded, ± rhombic, inflexed, and adnate to staminal tube, with an abaxial subapical appendage, the entire corolla umbrellalike with a central protruding style; androgynophore present, conspicuous; stamens 5, alternating with 5 antisepalous staminodia, connate into a staminal tube, the fertile filaments apically distinct, reflexed, anthers 3-thecate, staminodia apically distinct, ± triangular, recurved; gynoecium 5-carpellate, syncarpous, ovary with 2 ovules per locule, style simple, stigma subcapitate, 5-lobed. Fruit a schizocarpic capsule separating into 5, 1-seeded, bivalvate mericarps covered with short excrescences; seeds narrowly ovoid, slightly curved, apex abruptly subcylindric-conical, surface tuberculate, with longitudinal and transverse ridges forming a reticulum.

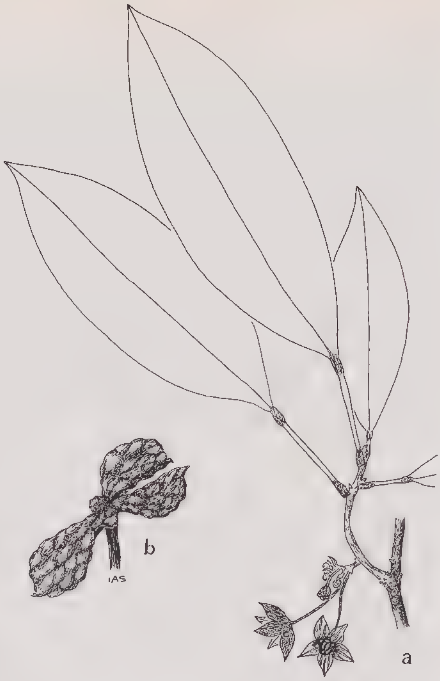
TYPE: *Ayenia pusilla* L.

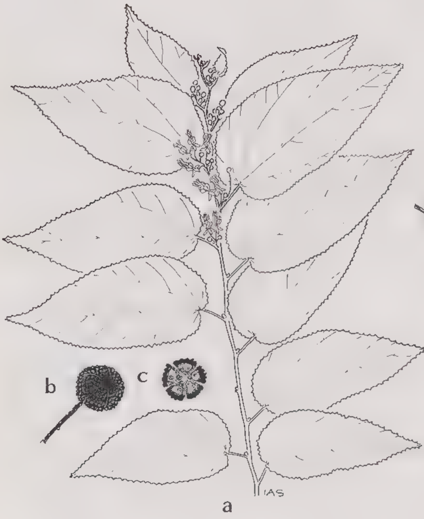
A tropical-subtropical, New World genus of 70(?) species extending into the extreme southern portions of the United States, including California, Arizona, New Mexico, Texas, and Florida. The genus ranges as far south as Argentina, with two primary centers of diversity, one in Mexico-northern Central America, the other in central South America (Bolivia, Paraguay, south-central Brazil). For additional information see C. L. Cristobal, Opera Lilloana **4:** 1-230. 1960.

Ayenia insulaecola Cristobal, Opera Lilloana **4:** 164. 1960. FIGURE 105.

Type: Bahamas, Great Ragged Island, *P. Wilson 7835* (holotype, NY).
Syn.: *Ayenia pusilla* auct. as to the West Indies, non L.







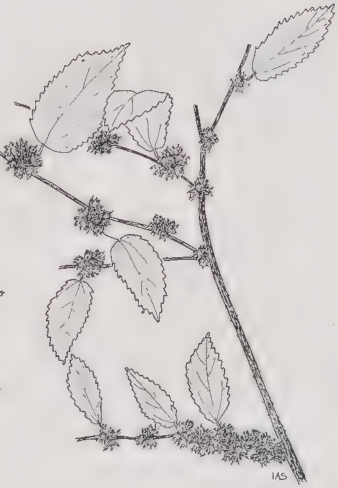


FIGURE 105 (upper left). *Ayenia insulaecola*, × 0.4. FIGURE 106 (upper right). *Cola acuminata*: a, flowering branch, × 0.4; b, fruit, × 0.4. FIGURE 107 (lower left). *Guazuma ulmifolia*: a, flowering branch, × 0.4; b, fruit, × 0.4; c, cross section of fruit, × 0.4. FIGURE 108 (lower right). *Melochia nodiflora*, × 0.4.

Plants to 3 dm tall, with dense pubescence of simple, often recurved hairs. Leaves with petioles 2-9 mm long, pubescent with simple and stellate hairs; blades ovate to ovate-elliptic to suborbiculate, 0.6-3 × 0.4-1.4 cm, base rounded to slightly cordate, apex obtuse to acute, margin crenate-dentate to serrate, glabrous to lightly pubescent, especially beneath, the hairs predominantly stellate. Flowers with pedicels 1-3 mm long, pubescent with simple hairs; sepals ovate-lanceolate, 2-2.5 mm long, abaxially sparsely stellate-pubescent; petals with claw ca. 3 mm long, limb ca. 1 × 1 mm, with apical sinus, slightly pubescent abaxially, appendage mammiform, ca. 0.5 mm long; androgynophore 1-1.5 mm long, glabrous; staminal tube ca. 1 mm long; ovary subglobose, stellate-pubescent, style slightly exserted beyond staminal tube, stigmata distinct, globular. Fruits subglobose, 3-4 mm long, pubescent; the excrescences to 1.5 mm long, sparsely pubescent; seeds 1.5-2 mm long.

GENERAL DISTRIBUTION: Bahamas, Hispaniola, Puerto Rico, the Virgin Islands, and the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts, Barbuda, Antigua!, St. Eustatius, St. Kitts, Montserrat, Guadeloupe.

NOTES: Material from the West Indies has previously been identified as *A. pusilla* L., a species, according to Cristobal (1960), confined to southern Ecuador and northern Peru, and distinguished by the long-petiolate leaves. Accordingly, she described new species from some of this material, most notably *A. ardua* and *A. insulaecola*. These two species are supposedly distinguished on the basis of leaf shape (ovate-lanceolate vs. ovate), leaf margin (serrate vs. dentate), and length of the fruit excrescences (0.3 vs. 1 mm), respectively. After examining specimens from the West Indies, including material annotated by Cristobal, I find it extremely difficult, if not impossible, to distinguish between these taxa. It is suggested that the West Indian 'species' need to be critically re-examined, especially in the field, to clarify this situation.

The description given above is based on material from the areas listed under 'General Distribution.'

COLA Schott & Endl.

Cola Schott & Endl., Melet. Bot. 33. 1832, nom. cons.

Medium-sized trees, vegetatively glabrous or with sparse stellate hairs, young branchlets occasionally with stout prickles or axillary thorns. Leaves alternate, simple, entire; stipules deciduous. Inflorescences axillary (rarely terminal) panicles or paniculiform cymes. Flowers unisexual and functionally staminate, or bisexual, the plants polygamous; calyx of (4 or)5(or 6) sepals, campanulate; petals absent; male flowers with 10 stamens borne on a short androphore, the anther loculi regularly arranged in two superposed whorls around the abortive gynoecium; bisexual flowers with sessile apocarpous gynoecium, carpels 4 or 5, coherent, surrounded at base by a whorl of apparently functional stamens, ovary with 4 to 14 ovules per locule, borne in two rows, style short, stigma lobes linear-subulate, recurved. Fruit an aggregate of follicles, these tardily dehiscent; seeds without endosperm.

TYPE: *Cola acuminata* (P. Beauv.) Schott & Endl. (*Sterculia acuminata* P. Beauv.), typ. cons.

A tropical genus of ca. 110 to 120 species, indigenous to Africa, cultivated elsewhere. Economically important as the source of cola nuts (seeds), which are used in the production of pharmaceuticals and as a natural flavoring in the beverage industry (cola soft drinks). For a detailed discussion of the history and usage of *Cola*, see F. Rosengarten's "The Book of Edible Nuts" (1983, pg. 282-285).

NOTE: While all floristic treaments of *Cola* in West Africa recognize both species reported for the Lesser Antilles, the inconsistency of the distinguishing features raises the question as to their validity as distinct taxa. On the basis of available material from the West Indies (Jamaica and the Lesser Antilles), it is not possible to recognize two species due to a general lack of fruits and seeds theoretically required for identification. As such, a single, somewhat generalized, species decription is provided. Information about fruits is taken from descriptions of *C. nitida* and *C. acuminata* in West Africa.

In the event that one should have fruiting specimens, a key is provided so that a more definitive determination can be made. The key is intended only for this purpose and not as a statement regarding the taxonomic status of the species, which is better left in the hands of a monographer.

The pertinent nomenclatural information for both species is also provided as this is a major focus of this flora. If the two taxa are eventually combined as one, *Cola nitida* (Vent.) Schott & Endl. apparently has priority over *Cola acuminata* (P. Beauv.) Schott & Endl. (March vs. June or October, 1805).

KEY TO THE SPECIES

Follicles green, shiny, smooth to the touch, but conspicuously knobby; seeds 4 to 8 (to 10) per follicle, each with 2 cotyledons . . . . *C. nitida*

Follicles reddish brown to olive green, rough to the touch due to a stellate puberulence, but not knobby; seeds up to 14 per follicle, each with 3 to 6 cotyledons . . . . *C. acuminata*

Cola acuminata (P. Beauv.) Schott & Endl., Melet. Bot. 33. 1832.
FIGURE 106.

Basionym: *Sterculia acuminata* P. Beauv., Fl. Oware **1:** 41, *t. 24.* June or October, 1805.

Type: Oware, *Palisot de Beauvois s.n.* (holotype, G).

Cola nitida (Vent.) Schott & Endl., Melet. Bot. 33. 1832.

Basionym: *Sterculia nitida* Vent., Jard. Malmaison **2**: 91. March, 1805.
Type: Africa, presumably a cultivated specimen that Michaux sent to Ventenat, a collection of which is perhaps at G.

Tree to 10 m tall, ± glabrous vegetatively. Leaves with petioles to 10 cm long, the apical region pulvinate, blackened; blades oblong to elliptic or narrowly obovate, 9.2-21.3(-24+) × 2.5-8.5 cm, base cuneate, apex obtuse to more commonly acuminate or abruptly acuminate, coriaceous, glabrous. Inflorescences short-pedunculate, the axes stellate-puberulent to pubescent. Flowers with pedicels to 17(-25) mm long, articulate just below calyx; sepals ovate-elliptic, 9-15 mm long, generally slighter longer in bisexual flowers, apex acute, white to cream-colored with red-purple markings radiating from base within, densely stellate-pubescent without, much more sparsely so within; male flowers with androphore to 1 mm long, stellate-pubescent, the apical fertile portion enlarged, disklike, sparsely puberulent; bisexual flowers with ovary globose, densely stellate-pubescent to tomentose, upper face glabrous. Fruits oblong-ovate 8-15 × 4-8 cm, green, olive-green, or red-brown, glabrous (at maturity) and shiny, or stellate-puberulent, knobby or not, smooth or rough to the touch; seeds 4 to 8 or up to 14 per follicle, ovoid to subglobose, ca. 3 × 2.5 cm, white, pink, or red with 2 or 3 to 6 cotyledons.

GENERAL DISTRIBUTION: Native to West Africa from Sierra Leone to Congo and Cabinda. Cultivated elsewhere in Africa and the New World, especially Jamaica and Brazil.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Dominica!, Martinique, St, Vincent!, Grenada!.

COMMON NAMES: None known specifically from the Lesser Antilles, but generally called cola (kola) or cola-nut (kola-nut). Known in Jamaica as bissy.

NOTES: Only one specimen in the Lesser Antilles (*Ernst 1414*, from Dominica) has fruits. R. DePhillips (*in* Nicolson's Flora of Dominica, unpublished mss.) identifies this collection as *C. nitida*; I am not convinced.

Most of the New World collections of *Cola* are identified as *C. acuminata*, but since they lack fruits or seeds, these determinations are speculative.

The collection from St. Vincent (*Guilding s.n.*, K) was made from a specimen cultivated in the botanic garden. Alexander Anderson obtained a single seed, but as stated in his unpublished Hortus he didn't recall from whom or where. He described the fruit as having "5 or 7 oblong, wrinkled capsules, united at the base and standing in horizontal position, having a longitudinal seam below and a furrow on the upper side. They are 5 inches long and 3 thick. When ripe they burst in two and expose from 5 to 7 large, chestnut-shaped seeds involved in a white, farinaceous, sweet pulp, pleasant to the taste. The seeds are hard, without shell, of a blue color."

ENDOSTEIRA Turcz.

Endosteira Turcz., Bull. Soc. Imp. Naturalistes Moscou **36**(1): 575. 1863.

Trees or shrubs, glabrate. Leaves opposite, entire. Inflorescences axillary, fasciculate, 2- to 4-flowered. Flowers bisexual; calyx of 4(or 5) sepals; petals 4 or 5, inserted along with stamens on an annular disk; stamens numerous, outer whorl fertile, arranged in groups of 3 opposite petals, inner whorl(s) sterile, linear-setaceous, woolly-puberulous, anthers oblong, bithecate; ovary immersed in disk, 3-locular, ovules 2 per locule, pendulous, style columnar, stigma small. Fruits unknown.

TYPE: *Endosteira oppositifolia* Turcz.

An imperfectly known genus of questionable affinity. Turczaninow felt that the genus was allied with the Brownlowieae in the Tiliaceae. Bentham (Gen. Pl. **1:** 985. 1867) stated that this supposed relationship was probably erroneous. At present it remains a taxon incertae sedis, but apparently is best placed in the Sterculiaceae as is done by Hutchinson (Gen. Fl. Pl. **2:** 515. 1967). The only species is *E. oppositifolia* Turcz., the type of which is a specimen (*Caley s.n.*) from St. Vincent. This collection is probably from a plant cultivated in the Botanic Garden when Caley was the director (1816-19), and therefore its actual origin is conceivably other than the island of St. Vincent. Although efforts have been made to locate this specimen it has not been found. No modern collections corresponding to this species or genus are known.

GUAZUMA Miller

Guazuma Miller, Gard. Dict. abr. ed. 4. 1754.

Trees, stellate-pubescent to glabrescent throughout. Leaves alternate, simple, irregularly serrate, often asymmetrical at base. Inflorescences axillary thyrsiform cymes. Flowers bisexual; calyx of 3 (rarely 2) unequal lobes, reflexed; petals 5, cucullate, ± unguiculate, apex involute and coherent with fertile stamen groups by two teeth, and prolonged into a deeply bifid, liguliform appendage; androphore or androgynophore absent; stamens 15, arranged in 5 antipetalous groups of 3, alternating with 5 staminodia, connate into a staminal tube, filaments short, reflexed, 1 free, 2 connate, anthers bithecate, staminodia distinct at apex, ± triangular; gynoecium 5-carpellate, syncarpous, ovary sessile with 5 minute lobes at apex, ovules many per locule, style simple, stigma lobes 1 to 5. Fruit a woody, muricate capsule, ± dehiscent into 5 valves; seeds ovoid, with endosperm.

LECTOTYPE: *Guazuma tomentosa* Kunth (= *Guazuma ulmifolia* Lam.); see G. F. Freytag, Ceiba **1:** 211. 1951.

A neotropical genus of three species ranging from Mexico through Central America and the West Indies to central South America. For additional information see G. F. Freytag, Ceiba **1:** 193-224. 1951.

Guazuma ulmifolia Lam., Encycl. **3:** 52. 1789. Figure 107.

Type: Santo Domingo, collector unknown (P-LA; IDC 6207, **92:** II. 3, 4, 5, photos!).
Syn.: *Theobroma guazuma* L., Sp. Pl. **2:** 782. 1753. (Type: Jamaica campestribus, collector unknown (LINN 934.2).)
Bubroma guazuma (L.) Willd., Sp. Pl. **3:** 1423. 1802.
Guazuma tomentosa Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 249 (ed. folio), 320 (ed. quarto). 1823. (Syntypes: northern South America, three *Humboldt & Bonpland s.n.* collections (P); IDC 6209. 133: I. 6, 7, and II. 1, photos!.)
Bubroma tomentosum (Kunth) Sprengel, Syst. Veg. ed. 16, **3:** 332. 1826.
Guazuma bubroma Tussac, Fl. Antill. **4:** 69, pl. 24. 1827. (Type: Not determined.)
Guazuma ulmifolia Lam. var. *tomentosa* (Kunth) Schumann *in* C. Martius, Fl. Bras. **12**(3): 81. 1886.
Theobroma tomentosa (Kunth) M. Gomez, Anales Soc. Esp. Hist. Nat. **19:** 217. 1890.
Guazuma guazuma (L.) Cockerell, Bull. Torrey Bot. Club **19:** 95. 1892.
Guazuma guazuma (L.) Cockerell var. *ulmifolia* (Lam.) Kuntze, Revis. Gen. Pl. **3**(3): 24. 1898.

Tree 8-20 m tall, occasionally shrublike; branches horizontally spreading with leaves in a flattened, distichous pattern, minutely stellate-pubescent, but glabrate. Leaves with petioles 0.3-2 cm long, densely stellate-pubescent to tomentose; blades oblong, ovate-oblong, or ovate, (3.3-)4.8-14.9 × 1.8-7.5 cm, base rounded to distinctly cordate, apex acute to long-acuminate, chartaceous, stellate-puberulent above, rarely glabrous, stellate-pubescent to tomentose beneath, less often puberulous or subglabrous. Inflorescences with ultimate axes scorpioid, densely stellate-pubescent to tomentose throughout. Flowers with pedicels 2.5-8 mm long; calyx lobes 3-3.5 mm long, densely stellate-pubescent to tomentose without, ± glabrous within; petals obovate, 3-4 mm long, with appendage 5-5.5 mm long, bifid for 3-4 mm, yellowish, stellate-puberulous to glabrous without, glabrous within; staminal tube 2-3 mm long, glabrous without, with sparse simple hairs near apex within; ovary ovoid, ca. 1 mm long, puberulous with simple hairs, especially toward apex, style and stigma simple, ca. 1-1.5 mm long. Fruits oblong-ovoid to ellipsoid to subglobose-depressed ovoid, 1.2-2.5 × 1.5-2.1 cm, black at maturity, indehiscent or dehiscent but with valves scarcely separating; seeds ca. 2 mm long.

General distribution: Continental tropical America, the West Indies, and introduced in India and neighboring countries, Hawaii, and Java.

Distribution in Lesser Antilles: Antigua!, St. Kitts!, Nevis, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines, Grenada!, Barbados!.

Common names: Hêtre orme, bois de hêtre, bois d'orme, bois de l'orme, bois de hêtre vert, hêtre gris, hêtre vert, orme, mahot-baba, mahot-hêtre, gunstock, bwa l'om, bois lome.

Note: Freytag recognized *Guazuma tomentosa* and *G. ulmifolia* as distinct species on the basis of the dehiscence or indehiscence of the capsules, the degree of development of the claw of the petals, and the shape and pubescence of the leaves. I am in agreement with Robyns (Ann. Missouri Bot. Gard. **51:** 104. 1961) and others that the variations noted by Freytag are simply extremes of continuously variable characters, and that the fruits are essentially indehiscent or with the valves apparent but not fully separating. Therefore, only the single species, *G. ulmifolia*, is recognized.

MELOCHIA L.

Melochia L., Sp. Pl. **2:** 674. 1753.

Herbs to shrubs, rarely trees elsewhere, pubescent with simple and/or stellate hairs. Leaves alternate, simple, crenate-serrate to serrate; stipules lanceolate to linear, generally hirsute and ciliate, eventually deciduous. Inflorescences axillary, terminal, or leaf-opposed cymes, umbelliform or glomerulate. Flowers bisexual, pedicellate or sessile, commonly heterostylous, generally with persistent bracts; calyx of 5 sepals, campanulate, persistent; petals 5, flattened throughout (noncucullate), without appendages, adnate to staminal tube, generally pink to purple, less often white, rarely yellow, marcescent; androphore absent; stamens 5, longer filamentous in short-stylous flowers, anthers bithecate; staminodes absent or obscurely present in some short-stylous flowers; gynoecium 5-carpellate, syncarpous, ovary sessile or short-stipitate, ovules 2 per locule, styles 5, free or partially connate, stigmata subulate-papillate. Fruit a loculicidal capsule separating into 5 valves, or a schizocarpic capsule separating into 5 cocci, each coccus then splitting along the ventral suture; seeds usually 1 per locule or coccus, trigonal-obovoid, with endosperm.

LECTOTYPE: *Melochia corchorifolia* L.; see N. L. Britton & C. F. Millspaugh, Bahama Fl. 277. 1920; G. K. Brizicky, J. Arnold Arbor. **47:** 70-71. 1966; and A. Goldberg, Contr. U.S. Natl. Herb. **34:** 211. 1967.

A pantropical, but predominantly New World genus of ca. 60 species, with extensions into warm-temperate and subtropical regions. For a complete worldwide monograph of the genus see A. Goldberg, Contr. U.S. Natl. Herb. **34:** 191-363. 1967.

KEY TO THE SPECIES

1. Fruit a subglobose, non-winged, septicidal, schizocarpic capsule separating into 5 cocci; inflorescences sessile or subsessile, headlike . . . . *M. nodiflora*
1. Fruit a pyramidal, winged, loculicidal capsule separating into 5 valves (not cocci); inflorescences distinctly pedunculate, umbelliform.
    2. Leaves densely tomentose and canescent, at least on the lower surface, with stellate hairs; inflorescences mostly axillary; capsules densely stellate-pubescent to tomentose . . . . *M. tomentosa*
    2. Leaves subglabrous to sparsely pubescent with predominantly simple hairs; inflorescences mostly leaf-opposed; capsules glabrous to sparsely stellate-puberulent . . . . *M. pyramidata*

Melochia nodiflora Sw., Prodr. 97. 1788. FIGURE 108.

Type: Jamaica, *Swartz s.n.* (holotype, S).
Syn.: *Mougeotia nodiflora* (Sw.) Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 257 (ed. folio), 330 (ed. quarto). 1798.
Riedlea nodiflora (Sw.) DC., Prodr. **1:** 491. 1824.
Visenia nodiflora (Sw.) Sprengel, Syst. Veg. **3:** 30. 1826.

Shrub, occasionally herbaceous, 0.8-3 m tall; branches distichous, twigs pilose with simple, forked, and stellate hairs, soon glabrate. Leaves with petioles 0.4-2.7 cm long, pilose; blades ovate to lanceolate-ovate, (2.5-)3.6-7(-8.6) × 1.2-4.2(-5.5) cm, base rounded to truncate to subcordate, apex acuminate, margin serrate, subglabrous with sparse, adpressed, simple hairs above and beneath, forked and stellate hairs less prevalent. Inflorescences axillary, sessile or subsessile, dense bracteate heads; peduncle 0-3 mm long. Flowers sessile or subsessile, the pedicel 0-2 mm long; calyx 3-5 mm long, the lobes lanceolate to deltate, apex ± caudate-acuminate, stellate-puberulous and pilose without, glabrous within; petals oblong-obovate, 4-5 mm long, pale pink to pink, occasionally white with pink venation, rarely yellow, glabrous; staminal tube ca. 2-2.5 mm long, filaments never free, anthers ca. 0.75 mm long; ovary ovoid-ellipsoid, ca. 1 mm long, densely pilose with simple hairs, styles distinct, 2-2.25 mm long. Fruit a septicidal schizocarpic capsule, obloid to subglobose, 5-lobed, 2.5-3.5 × 3-4.5 mm, stellate-puberulous and pilose, separating into 5 cocci, each dehiscent along a ventral suture; seeds ca. 2 mm long.

GENERAL DISTRIBUTION: Mexico, Central America, the West Indies, and northern South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts, Antigua, Nevis!, Montserrat!, Guadeloupe!, Dominica, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados.

COMMON NAME: Mauve.

NOTE: This species is known only in the long-stylous form.

Melochia pyramidata L., Sp. Pl. **2:** 674. 1753.

Type: Brazil, collector unknown (LINN 855.1).
Syn.: *Melochia domingensis* Jacq., Select. Stirp. Amer. Hist. 194. 1763. (Type: Santo Domingo, collector and location of type specimen unknown.)
Moluchia pyramidata (L.) Britton, Brooklyn Bot. Gard. Mem. **1:** 69. 1918.

Erect or spreading herb to 1 m tall; stems puberulous, generally on one side, with simple and forked hairs. Leaves with petioles 0.5-2 cm long, densely pilose on adaxial surface; blades lanceolate to ovate, 0.5-3.1 × 1.3-7.2 cm, base rounded to subcordate, apex acute to acuminate, margin coarsely serrate, ± glabrous above, glabrous to very sparsely puberulous beneath, the hairs usually simple or forked. Inflorescences leaf-opposed umbelliform cymes; peduncles 0.2-1.3 cm long, pilose. Flowers with pedicels 1-5 mm long, puberulous; calyx 3-5 mm long, the lobes lanceolate to triangular, apex caudate-acuminate, ciliate and puberulous on both surfaces, the hairs primarily simple and forked; petals obovate-spatulate, 7.5-9 mm long, rose-purple to violet, rarely white, glabrous; staminal tube 2-2.25 mm long, free filaments 1.5-2 mm long, anthers ca. 1 mm long; ovary narrowly ellipsoid, ca. 1 mm long, borne on a stipe ≤ 0.5 mm long, stellate-puberulous, styles 5-5.5 mm long, basally connate for ca. 2 mm. Fruit a loculicidal capsule borne on a short stipe, pyramidal, 5-angled, 6-8 × 6-10 mm, including short beak, valves winged, the wings with acute points toward base, often purple splotched, stellate-puberulous; seeds 1.5-2 mm long.

GENERAL DISTRIBUTION: Texas, southern Florida, south through Mexico, the West Indies, Central America (excluding Panama), and South America to Argentina. Also introduced in Indomalesia-Australia.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Antigua!, St. Eustatius, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante, Dominica!, St. Lucia, Grenada!, Barbados.

COMMON NAME: Mauve.

NOTES: The description of the flowers is based on long-stylous forms. No short-stylous flowers were seen.

Goldberg recognizes two varieties of *M. pyramidata* on the basis of the density and type of hairs. All of the Lesser Antillean material would fall within his circumscription of var. *pyramidata.*

Melochia tomentosa L., Syst. Nat. ed. 10, **2:** 1140. 1759.

Type: Not determined.

Syn.: *Melochia frutescens* Jacq., Observ. Bot. **2:** 22, *pl. 44.* 1767. (Type: St. Martin, collector and location of type specimen unknown.)
Moluchia frutescens (Jacq.) Medikus, Malvenfam. 10. 1787.
Melochia turpiniana Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **5:** 251 (ed. folio), 323 (ed. quarto), *pl. 482.* 1823. (Type: ?Colombia, *Humboldt & Bonpland s.n.* (holotype P; IDC 6209. 133: II. 3, photo!).)
Melochia tomentosa L. var. *frutescens* (Jacq.) DC., Prodr. **1:** 490. 1824.
Melochia tomentosa L. var. *turpiniana* (Kunth) Schumann *in* C. Martius, Fl. Bras. **12**(3): 34. 1886.
Moluchia tomentosa (L.) Britton, Brooklyn Bot. Gard. Mem. **1:** 69. 1918.

Erect or spreading shrub or subshrub 0.5-3 m tall; young stems densely stellate-tomentose, canescent, eventually glabrescent or nearly so. Leaves with petioles 0.15-2.1 cm long, densely stellate-tomentose, canescent; blades ovate, ovate-lanceolate, or oblong-lanceolate, generally 1-5.8 × 0.5-3.1 cm, even smaller on lateral branches, base rounded to subcordate or truncate, apex rounded to acute, margin crenate-serrate to serrate, densely stellate-tomentose above and beneath, commonly canescent, especially beneath. Inflorescences axillary umbelliform cymes, densely stellate-tomentose, canescent throughout; peduncles 1-8 mm long. Flowers with pedicels 2-6 mm long; calyx 5-8 mm long, the lobes lanceolate to linear-lanceolate, apex acuminate to caudate-acuminate, densely stellate-tomentose without, glabrous within;

petals oblanceolate to obovate-cuneate, 8-9.5 mm long, pink, lavender, mauve, or rose, rarely blue, glabrous; staminal tube 3-3.5 mm long, free filaments 1-1.5 mm long (5-6 mm in short-stylous flowers), anthers ca. 1 mm long; ovary ellipsoid to ovoid, 2-2.5 mm long (ca. 1 mm in short-stylous flowers), borne on a stipe 0-1 mm long, stellate-tomentose, styles 5-6.5 mm long (3-3.5 mm in short-stylous flowers), basally connate for ca. 2 mm, stellate-pubescent to tomentose from base to near middle. Fruit a loculicidal capsule borne on a short stipe, pyramidal, 5-angled, 8-12 × 6.5-9 mm, including long beak, valves winged, the wings with acute to rounded points at base to near middle, densely stellate-tomentose; seeds ca. 2 mm long.

General distribution: Southern Florida, Mexico, the West Indies and northern South America; infrequent in Central America.

Distribution in Lesser Antilles: Anguilla!, St. Martin!, St. Barts!, Barbuda, Antigua!, Saba, St. Eustatius, St. Kitts!, Nevis, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent, the Grenadines!, Grenada!, Barbados.

Common names: Bois-champignon, black widow, balsam.

Notes: A. Goldberg recognizes three varieties of *M. tomentosa* on the basis of leaf size and degree of pubescence, with all three forms supposedly present in the Lesser Antilles. He freely admits that the varieties ''grade into one another,'' and with the numerous intermediate forms available we feel it is unwise to recognize these varieties as circumscribed at present.

STERCULIA L.

by Elizabeth L. Taylor

Sterculia L., Sp. Pl. **2:** 1007. 1753.

Syn.: *Clompanus* Rumph. ex Raf., Sylva Tellur. 73. 1838, non Aublet (1775). (Type: *Clompanus moluccanus* Raf. = *Sterculia foetida* L.)

Subcanopy or canopy trees or rarely treelets, usually buttressed, evergreen or deciduous, andromonoecious. Leaves alternate, petiolate; blades palmately compound or simple and entire or palmately lobed; stipules modified into stipulaceous bracts, deciduous or rarely persistent. Flowers staminate or perfect, with sexual parts borne on elongate androgynophore; sepals lobes sometimes with appendages; petals absent; stamens 10, 12, 15 or many; with anther loculi irregularly arranged; gynoecium secondarily apocarpous, tomentose or pilose; ovules 2 to 20 per carpel, style recurved, stigma capitate or 5-lobed. Fruits of 1 to 5 woody follicles, bright red or brown, densely minutely velutinous externally, red-brown hispid or glabrous internally; seeds 2 to 20 per follicle, pendant from follicular suture, ellipsoidal, with glistening blue-black, papery tegument, endosperm present.

Lectotype: *Sterculia foetida* L., vide A. S. Hitchcock & M. L. Green, Prop. Brit. Bot. 190. 1920.

A genus of about 200 species that occurs throughout the tropics. For additional information see E. L. Taylor, Studies in the tribe Sterculieae: A revision of the Neotropical species of *Sterculia L.*, Ph.D. thesis, Harvard University, 1988.

CULTIVATED SPECIES

Sterculia alata Roxb. This paleotropical species is currently considered a species in the genus *Pterygota* (see Kostermans, Reinwardtia **2:** 366. 1953, and Van Steenis, Blumea **23:** 139, 140. 1976). It was cultivated in the Roseau Botanic Garden on Dominica.

Sterculia apetala (Jacq.) G. Karsten is cultivated on St. Kitts, Montserrat, Martinique, and Barbados. The species occurs throughout the New World tropics and was first described from Cayenne by Jacquin (Enum. Syst. Pl. 30. 1760; Select. Stirp. Amer. Hist. 238, *pl. 181, fig. 97.* 1763) as *Helicteres apetala.* The adult leaves are three- to five-lobed and densely hirsute abaxially, whereas the flowers lack sepal appendages and have broadly triangular sepal lobes.

Sterculia coccinea Jack was collected in the Botanic Garden of St. Pierre, Martinique, and is apparently still cultivated on the island. It is native to Asia and Malesia and has leathery, simple, entire, elliptic leaves and a lax inflorescence.

Sterculia foetida L. was cultivated in the Roseau Botanic Garden on Dominica. The species is readily differentiated from the other species treated here in having palmately compound leaves.

Sterculia pruriens (Aublet) Schumann (*in* C. Martius, Fl. Bras. **12**(3): 8. 1886) was introduced to St. Vincent by Anderson in 1791 by seed brought from Guyana. The species occurs throughout northern South America. There is geographically correlated variation in density of the indumentum on the lower leaf surface. In Trinidad, Venezuela, and western Guyana, the indumentum is golden red and rapidly deciduous as the leaves mature, leaving scattered patches of indumentum on the adult leaves. In eastern Guyana, Suriname, Cayenne, and in Brazil, in western and southern Pará, Amapá and Maranhão, the indumentum is red, persistent, continuous, and thick on the mature leaves. In eastern Pará around Belém, the indumentum is intermediate between these two patterns. The Lesser Antillean material is similar to that of Trinidad, Venezuela, and Guyana. Common names for this species include grand mahot, or mahaut (or mahot) cochon, the same names as for *S. caribaea.* It is often confused with *S. caribaea.* (See below in description of *S. caribaea* for list of distinguishing characters.)

Sterculia rugosa R. Br. (*in* Bennett, Pl. jav. rar. 229. 1852) is based on an Anderson specimen from the Botanic Garden at St. Vincent. It is now considered to be a synonym of *Sterculia excelsa* C. Martius (Flora **24**(2) beibl. 40. 1841). *S. excelsa* occurs on the northern South American mainland and is remarkable for its simple, entire, bullate leaves that bear pedicellate stellate hairs on their undersurfaces. Anderson in his unpublished Hortus refers to this species as "Sterculia hirsuta." It is known in the Lesser Antilles only from the tree once cultivated in the Botanic Garden.

Sterculia caribaea R. Br. *in* Bennett, Pl. jav. rar. 228. 1852. FIGURE 109.

Type: Insulis Caribaeis, *de Ponthieu s.n.* (holotype, BM).
Syn.: *Sterculia ivira* Sw., Prodr. 98. 1788, nom. illegit. citing *Ivira pruriens* Aublet.; Fl. Ind. Occid. **2:** 1160. 1800, p.p.
Clompanus caribaea (R. Br.) Kuntze, Revis. Gen. Pl. **1:** 78. 1891.

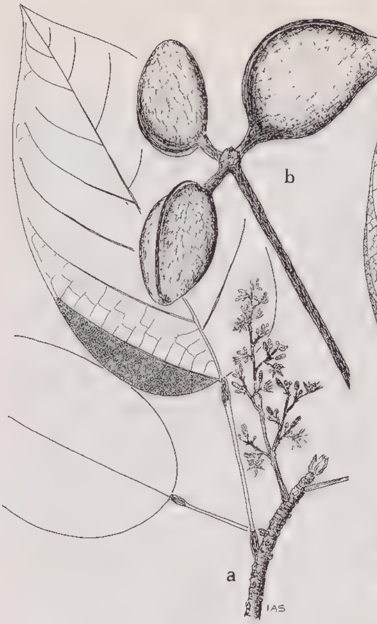
Tree to 16.5 (-35) m tall, d.b.h. to 31 (-100) cm, evergreen; twigs 0.3-0.8 cm in diameter, corrugated, prominently ridged, with prominent rings of condensed stipulaceus bract scars, dark brown with black streaks, glabrous to glabrescent. Leaves simple, entire or three-lobed, blades in entire leaves narrowly to widely ovate, 6-33 × 3-20 cm, in three-lobed leaves widely ovate, 9-49 × 7-47 cm, base cordate to rounded, apex acuminate to long-acuminate, margin entire, chartaceous to subcoriaceous, tomentulose abaxially, with golden, sessile, appressed, 4-rayed stellate hairs with rays to 0.1 mm long, glaucous abaxially. Panicles borne loosely erect to erect below apices of flushing main shoots from axils of stipulaceous deciduous leaves. Staminate calyx tube 1.5-3 × 4.5-7 mm, calyx tube of perfect flowers (1.2-)1.5-3 × 4.5-8 mm, sepal lobes erect, narrowly triangular, staminate lobes 5.5-11 × 1.2-3 mm, lobes of perfect flowers 7-12 × (1.5-)1.7-4 mm, glabrous around base of androgynophore, with golden or red papillae condensed in ring basally and scattered above, red vermiform hairs from above ring of papillae to sepal appendage, and golden sessile 4-rayed stellate hairs on edges of lobes, sepal appendage 1/3 way up lobe; androgynophore 5-7 mm long in staminate flowers, 4-7 mm long in perfect flowers, papillate or short-glandular at base, glabrous above; androecium with 10 stamens; gynoecium tomentose, with 4 to 6 ovules per carpel. Follicles 4-7.5 × 2-3.7 × 3-5 cm; seeds 2 to 6 per follicle.

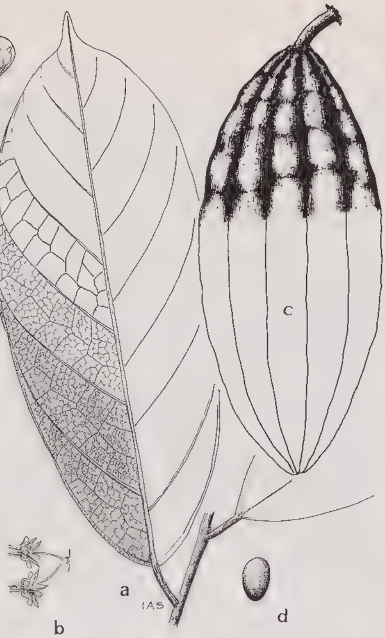
GENERAL DISTRIBUTION: Endemic to the large volcanic islands of the Lesser Antilles.

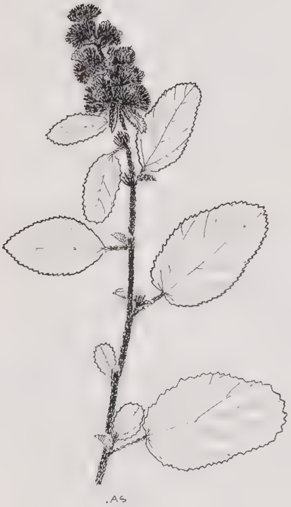
DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Bois mapou, bois- or chataignier-grand feuilles, grand mahot, mahaut cochon, mahaut doux, mapou-baril, wild mahot.

NOTES: In his emended description of *S. ivira* in the Fl. Ind. Occid. Swartz cited as an additional collection the type of *S. caribaea*, thus confounding *S. caribaea* with *S. ivira* whose correct name is *S. pruriens*. Swartz has not been the only taxonomist to confuse *S. caribaea* with *S. pruriens* (Aublet) Schumann. For example, the Lesser Antillean collections of *S. pruriens* consulted for this study were nearly all identified as *S. caribaea* as were most of the collections from Trinidad, where *S. caribaea* does not occur at all. *S. pruriens* has smaller elliptic rather than large ovate leaves, less robust branches and smaller fruits. Although the flowers of the two species are quite similar, those of *S. pruriens* tend to have wide sepal lobes with denser indumentum on the adaxial apices and sepal appendages located one-half way up the lobe rather than one-third way up as they are in *S. caribaea*.







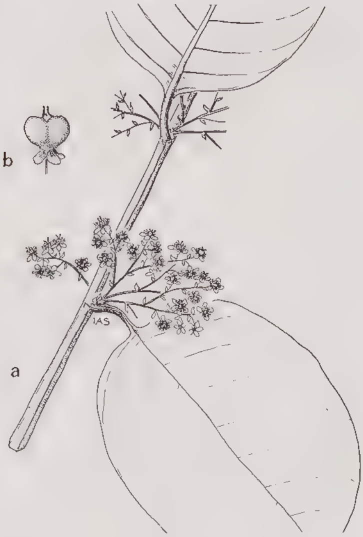


FIGURE 109 (upper left). *Sterculia caribaea*: a, flowering branch, × 0.3; b, fruit, × 0.3. FIGURE 110 (upper right). *Theobroma cacao*: a, leaf, × 0.3; b, flower, × 0.3; c, fruit, × 0.3; d, seed, × 0.3. FIGURE 111 (lower left). *Waltheria indica*, × 0.3. FIGURE 112 (lower right). *Pinzona coriacea*: a, flowering branch, × 0.3; b, fruit, × 0.3.

In *S. pruriens* the inflorescences are usually borne on small branchlets axillary to the main shoot whereas in *S. caribaea* the inflorescences are borne on the main shoot. The leaves of *S. caribaea* are nearly glabrous on the undersurface, the indumentum consisting of minute, scattered, golden, appressed, four-rayed stellate hairs. Exceptions are most of the collections from Martinique since the indumentum is denser, red and more robust, resembling that of *S. pruriens.*

THEOBROMA L.

Theobroma L., Sp. Pl. **2:** 782. 1753.

Trees; youngest twigs stellate-puberulous, soon glabrate. Leaves alternate, simple, entire or irregularly sinuate; stipules subulate, stellate-puberulous, deciduous. Inflorescences axillary, 1- to many-flowered, fasciculate cymes. Flowers bisexual; calyx of 5 slightly connate sepals; petals 5, contorted, cucullate, apical appendage entire; androphore or androgynophore absent; stamens 10, arranged in 5 groups of 2, alternating with 5 staminodia, connate into a short staminal tube, filaments short, minutely bifurcate, each branch with one bithecate anther hidden in petal hood; staminodia distinct, linear-subulate, elongate; gynoecium 5-carpellate, syncarpous, ovary sessile, ovules many per locule, arranged in two rows, styles 5, partially connate, stigmas acute. Fruit a large, indehiscent, fleshy berry (drupelike), with many seeds per locule; seeds ovoid to ellipsoid, surrounded by a thick, pulpy tissue (endocarp) that fills the cavity, endosperm absent.

Lectotype: *Theobroma cacao* L.; see M. L. Green, Prop. Brit. Bot. 177. 1929.

A neotropical genus of ca. 25 species, ranging from Mexico to central South America, and introduced in cultivation thoughout the tropics, including the West Indies. For additional information see J. Cuatrecasas, Contr. U.S. Natl. Herb. **35:** 379-614. 1964.

Theobroma cacao L., Sp. Pl. **2:** 782. 1753. Figure 110.

Lectotype: Sloane Herb. vol. 5, p. 59 (bm); per Cuatrecasas, loc. cit. p. 496.

Tree 4-8 m tall with whorled branches (usually 5 per whorl) and sympodial growth producing a low spreading crown. Leaves with petioles 1-2 cm long, pulvinate at both ends, puberulous to pubescent with simple hairs; blades obovate-elliptic to oblong-elliptic, (12.3-)15.7-39.9 × 4.5-13.4 cm, base rounded to obtuse, apex acute to caudate-acuminate, subglabrous above and beneath, but with simple, forked, and stellate hairs on major veins. Inflorescences borne on trunk and branches (cauliflorous). Flowers with peduncles 0.6-1.7 cm long, pubescent primarily with stellate hairs, but also with larger, multicellular, gland-tipped hairs; sepals lanceolate to oblong-lanceolate, 5-7.5 mm long, thickened, stellate-puberulous to glabrate without, glabrous within; petals strongly cucullate and hooded, 4-4.5 mm long, white, 3-nerved with two lateral nerves very conspicuous, purple, appendage entire, attenuate-spatulate, 7-7.5 mm long, yellowish, glabrous; staminal tube 1-1.5 mm long; stamens with filaments 1.5-2 mm long, anthers ca. 0.5 mm long, staminodes 4-6 mm long with conspicuous purple median nerve; ovary ovoid-ellipsoid, ca. 1.5 mm long, papillose-glandular, styles 1.5-2 mm long, adherent. Fruits variable in size and shape, generally oblong to fusiform, 5-angled, 10-20 cm long, to 10 cm wide; seeds 1.2-2.6 mm long, brown, the surrounding pulp white and sweet.

GENERAL DISTRIBUTION: Native to Mexico-northern Central America, and north-central South America; cultivated elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Antigua, Saba!, St. Eustatius, Guadeloupe!, Dominica!, Martinique, St. Lucia, St. Vincent, Grenada!, Barbados.

COMMON NAMES: Cocoa, cacaoyer.

NOTES: An economically important species as the source of cocoa beans (the seeds) used in the production of chocolate, cocoa butter, and cocoa. Principally produced in Brazil, Ivory Coast, Ecuador, and the Dominican Republic, with the United States importing over 250,000 metric tons of cocoa beans in 1984/85, and a similar amount of derived products.

Two subspecies and three forms are recognized by Cuatrecasas, primarily on differences in fruit shape and texture. Subspecies 'cacao' and its three forms (the 'Criollo' group) are presumably Central American in origin, whereas subspecies 'sphaerocarpum' (the 'Forastera' group) originated in South America. The 'Criollo' group is more widely cultivated because of its better quality beans. It is not possible to identify the available herbarium material from the Lesser Antilles because the specimens lack adequate fruits.

WALTHERIA L.

Waltheria L., Sp. Pl. **2:** 673. 1753.

Shrubs or suffrutescent herbs with pubescence primarily of stellate hairs. Leaves alternate, simple, crenate-serrate or serrate; stipules lanceolate-subulate, deciduous. Inflorescences axillary or terminal compound cymes, glomerulate or paniculiform, pedunculate to subsessile. Flowers bisexual, sessile, with persistent bracts; calyx of 5 sepals, proximally connate into a campanulate-turbinate tube; petals 5, flattened throughout (noncucullate), without appendages, contorted, unguiculate, adnate to base of staminal tube, orange to yellow, marcescent; stamens 5, connate into a staminal tube, anthers bithecate; staminodia absent; gynoecium unicarpellate, ovary sessile, subtruncate and pubescent at apex, ovules 2, style solitary, excentric, stigma plumose, brushlike. Fruit a bi-valved, 1-seeded follicle surrounded by persistent calyx and marcescent corolla; seeds obliquely obovoid, with endosperm.

LECTOTYPE: *Waltheria americana* L.; see N. L. Britton, Fl. Bermuda 242. 1918, = *Waltheria indica* L.

A largely tropical American genus of 30 to 40 species.

KEY TO THE SPECIES

Plants densely stellate-pubescent to tomentose throughout . . . . *W. indica*
Plants with minute glandular hairs throughout, appearing glabrous . . . . *W. glabra*

Waltheria glabra Poiret *in* Lam., Encycl. **8:** 325. 1808.

Type: Guadeloupe, collector unknown (holotype, FI?).
Syn.: *Waltheria laevis* D. Wolf ex Schrank, Pl. Rar. Hort. Monac. **2**(6): 55, *t. 55.* 1820. (Type: Guadeloupe, a cultivated plant grown in the Würzburgen garden.)
Riedlea berteriana Balbis ex DC., Prodr. **1:** 492. 1894. (Type: Guadeloupe, *Bertero s.n.* (holotype, G-DC; IDC 2562. 210: I. 2, photo!).)

Shrub or suffrutescent herb to 1.5 m tall, appearing glabrous throughout but with minute glandular hairs. Leaves with petioles 0.3-2.8 cm long; blades ovate, 1.5-7.5 × 0.7-3.3 cm, base obtuse to subcordate, apex obtuse to acute, margin irregularly serrate. Inflorescences axillary, rarely terminal, glomerulate, subsessile to long-pedunculate, the peduncle to 2.2 cm long. Flowers with calyx 4-4.5 mm long, the lobes triangular, apex caudate-acuminate; petals oblong-spatulate, 4-5.5 mm long, yellow; staminal tube ca. 2.5 mm long, anthers subsessile, ca. 0.75 mm long; ovary ovoid-ellipsoid, 1 mm long, style to 2 mm long. Fruits obliquely obovoid, 2-2.5 mm long, with stellate hairs along apical suture; seeds 1.5-2 mm long.

GENERAL DISTRIBUTION: Haiti and the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Marie Galante!, Martinique!.

COMMON NAMES: Mahot-noir, bois-guimauve, balai noir.

Waltheria indica L., Sp. Pl. **2:** 673. 1753. FIGURE 111.

Type: Not designated.
Syn.: *Waltheria americana* L., Sp. Pl. **2:** 673. 1753. (Type: Not designated.)
Waltheria americana L. var. *indica* (L.) Schumann *in* Engl., Monogr. Afrik. Pflanzen-Fam. **5:** 47. 1900.
Waltheria indica L. var. *americana* (L.) R. Br. ex Hosok., Occas. Pap. Bernice Pauahi Bishop Mus. **13:** 224. 1937.

Shrub or suffrutescent herb 0.7-2 m tall, densely stellate-pubescent to tomentose throughout, ± glabrate. Leaves with petioles 0.4-2.9 cm long; blades ovate to oblong-ovate or ovate-lanceolate, 1.3-8.1 × 0.9-5.3 cm, base rounded to truncate to subcordate, apex obtuse to subacute, margin crenate-serrate to serrate or irregularly serrate, velvety stellate-pubescent to tomentose, occasionally the hairs stiff, the texture hirsute to subscabrous. Inflorescences axillary or terminal, generally glomerulate but occasionally more elongate and paniculiform, subsessile to long-pedunculate, the peduncle to 5.3 cm long. Flowers with calyx 4-4.75 mm long, the lobes triangular-subulate, apex caudate-acuminate, stellate-sericeous without, glabrous within; petals oblong-spatulate to oblong-obovate, 4-5 mm long, yellow to orange; staminal tube 2-3 mm long, anthers subsessile, 0.75 mm long; ovary oblong-ellipsoid, ca. 1 mm long, apex sericeous, style ca. 1.5 mm long. Fruits obliquely obovoid, 2.5-3 mm long, sericeous; seeds ca. 2 mm long.

GENERAL DISTRIBUTION: A pantropical weed, native to the New World, introduced and naturalized in the Old World.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda, Antigua!, Saba, St. Eustatius, Montserrat, Guadeloupe!, La Désirade, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines, Grenada!, Barbados.

COMMON NAMES: Guimauve, mauve-gris, marsh-mallow, velvet leaf, monkey bush, boater bush, leather coat, buff coat.

NOTES: *Waltheria indica* and *W. americana* were simultaneously described by Linnaeus. The two taxa have long been considered conspecific, but most authors have combined them under *W. americana*. However, according to article 57.2 of the ICBN (under which this case is cited as an example), the author who first combines two taxa with equal priority must be followed in his choice of the 'correct' name. As far as known, R. Brown (*in* Tuckey, Narr. Exped. Zaire 484. 1818) was the first to unite these taxa, and his choice of *W. indica* must be accepted.

DILLENIACEAE

by Allan J. Bornstein

DILLENIACEAE Salisb., Parad. Lond. **2**(1): sub *t. 73.* 1807 ('Dilleneae').

Trees, shrubs, or woody vines. Leaves alternate, petiolate; blades simple, entire or dentate; stipules absent. Inflorescences axillary panicles. Flowers perfect, regular; sepals 3 to 5, imbricate, persistent; petals usually 5, as few as 3, imbricate, often crumpled in bud, caducous; stamens generally numerous, some often modified to staminodia, filaments free or partially coherent, anthers basifixed, bithecate, dehiscent by longitudinal slits or apical pores; gynoecium bi- or unicarpellate (elsewhere multicarpellate), the carpels free or connate, ovary superior, sessile, with 2 (to many) ovules per locule, styles free, as many as carpels, stigma capitate. Fruits follicular or baccate, generally dehiscent; seeds 2 (rarely 1) per locule, arillate, with copious, fleshy endosperm.

TYPE: *Dillenia* L.

A pantropical and subtropical family of ten or eleven genera and 325 to 350 species; best developed in Australasia. Only one genus is native in the Lesser Antilles, with two others reportedly in cultivation.

CULTIVATED TAXA

Two species of *Dillenia*, a genus native to the Old World, primarily Malesia, have been recorded in cultivation as ornamentals for their beautiful foliage and flowers. *Dillenia indica* L. (Sp. Pl. **1:** 535. 1753) has been reported on the islands of Guadeloupe, Dominica, and Martinique, whereas *Dillenia suffruticosa* (Griffith) Martelli (*in* Becc., Malesia **3:** 163. 1887; basionym: *Wormia suffruticosa* Griffith, Not. Pl. Asiat. **4:** 706. 1854) is known from the Roseau Botanic Garden on Dominica (*Hodge 3915*, GH!). The genus is easily distinguished from other Dilleniaceous genera that one might encounter in the Lesser Antilles on the basis of the numerous, ± free carpels borne on a conical receptacle, and the many ovules (> 5) per carpel.

Curatella americana L. (Syst. Nat. ed. 10, **2:** 1079. 1759), a species found primarily in continental America from Mexico to Brazil, is known from St. Vincent on the basis of three collections (*Guilding s.n.*, K, *Smith & Smith 1788*, NY and *Powell 12*, NY), all presumably from cultivated specimens. Alexander Anderson, in his unpublished Hortus, stated that he brought this plant to St. Vincent from the dry and barren savannahs of Trinidad. The monotypic genus is most similar to *Pinzona*, but is distinguished by the tree habit, the stellate pubescence, and the very scabrous leaves.

NOTE: *Tetracera volubilis* L. has been reported to occur in Barbados. No representative material has been seen from the Lesser Antilles, and K. Kubitzki (Mitt. Bot. Staatssamml. München **8:** 1-98. 1970), in his monograph of *Tetracera*, does not indicate that it occurs in this area. Similarly, Gooding, Loveless, and Proctor (Fl. Barbados, 1965) do not list this species in their floristic treatment.

PINZONA C. Martius & Zucc.

Pinzona C. Martius & Zucc. *in* Zucc., Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. **1:** 371. 1832.

Lianas with anomalous secondary growth; stems angular, pilose to strigulose, glabrescent; bark exfoliating in thin strips. Leaves entire, commonly undulate, coriaceous, glabrous except for pilose nerves. Inflorescences multibranched panicles. Flowers pedicellate; sepals 3 or 4, subequal; petals 3; stamens numerous, none modified to staminodia, filaments free, anthers longitudinally dehiscent; gynoecium of two carpels, ovaries ± fused throughout their length, ovules borne near base of wall that separates the two locules (subbasal placentation), styles separate. Fruits baccate, indehiscent or irregularly dehiscent, bilobed; seeds 2 per locule.

TYPE: *Pinzona coriacea* C. Martius & Zucc.

A monotypic, neotropical genus of Central and northern South America, and portions of the West Indies. For more information concerning this genus and its relationships with other taxa in the tribe Delimeae see K. Kubitzki, Mitt. Bot. Staatssamml. München **9:** 1-105. 1971.

Pinzona coriacea C. Martius & Zucc. *in* Zucc., Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. **1:** 371. 1832. FIGURE 112.

Type: Brasilia aequatoriali ad flumen Amazonum, *Martius s.n.* (holotype, M).

Syn.: *Pinzona calineoides* Eichler *in* C. Martius, Fl. Bras. **13**(1): 71, *t. 16, fig. 2.* 1863. (Type: Guadeloupe, *Duchassaing s.n.* (holotype, B, presumably destroyed; photo, K, S).)

Doliocarpus calineoides (Eichler) Gilg *in* Engl. & Prantl, Nat. Pflanzenfam. **3**(6): 114. 1893.

Doliocarpus coriacea (C. Martius & Zucc.) Gilg *in* Engl. & Prantl, Nat. Pflanzenfam. **3**(6): 114. 1893.

Curatella coriacea (C. Martius & Zucc.) Benoist, Bull. Soc. Bot. France **60:** 394. 1913.

Liana climbing to 20 m or more; stem diameter to 2 dm. Leaves with petioles 1.1-3 cm long, narrowly winged; blades elliptic to ovate to obovate, (5.1-)6.3-14.2 × 2.8-10.1 cm, base rounded to obtuse or cuneate, apex rounded to obtuse, often apiculate. Inflorescence axes pilose-strigulose; bracts lanceolate-ovate, ± cupulate, 2-3 mm long, sparsely pilose. Flowers with pedicels 2-6 mm long, pilose-strigulose; sepals obliquely ovate to broadly ovate-elliptic, 3.5-4 mm long, ciliate; petals oblong-obovate, 4.5-5 mm long, white to greenish white; stamens with slender filaments 2.75-4.5 mm long, anthers to 0.5 mm long; ovary bilobed, ca. 2 × 3 mm, styles 2-2.25 mm long. Fruits strongly bilobed, 3.5-5 × 5-7 mm, glabrous; seeds obovate, ca. 3 mm long, 2 or rarely 1 per locule, black, shiny, surrounded by whitish aril.

GENERAL DISTRIBUTION: Belize to Nicaragua, northern South America to Amazonian Brazil, Hispaniola, Puerto Rico, and the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!.

COMMON NAMES: Corde de l'eau, liane à eau.

NOTES: The stems are said to yield potable water. The specimen from Dominica (*Taylor 37*, GH!) is sterile and therefore could also be one of the climbing species of *Doliocarpus*, a genus distinguished from *Pinzona* on the basis of its unicarpellate gynoecium. Many authors do not choose to recognize this distinction at the generic level, but we follow Kubitzki (loc. cit.) in doing so.

The description is derived from material examined throughout the range of the species.

OCHNACEAE

by Allan J. Bornstein

OCHNACEAE DC., Ann. Mus. Natl. Hist. Nat. **17:** 410. 1811.

Trees, shrubs, or herbs. Leaves alternate, short-petiolate to subsessile; blades simple, entire or serrulate; stipules present, entire or laciniate, caducous or persistent. Inflorescences axillary or terminal racemes or panicles, or axillary, few-flowered, umbelliform fascicles. Flowers regular, perfect, 5-merous; sepals free, equal or unequal, imbricate (often quincuncial), persistent; petals free, convolute, caducous; fertile stamens 5 or 10, with very short, persistent filaments, anthers linear-subulate, basifixed, bithecate, dehiscent by apical pores or longitudinal slits; staminodes present or absent, when present borne between fertile stamens and petals in 1 to 3 series, the innermost series petaloid, opposite the petals, the outer whorl(s) of sterile filaments; ovary superior, 3- to 5-carpellate (more elsewhere), syncarpous or very deeply lobed and appearing apocarpous, 1-to 5-locular, ovules 1 to many per locule, erect, borne on axile or intrusive parietal placentae, style apical or gynobasic, stigma simple (lobed elsewhere). Fruit an aggregate of drupes borne on an enlarged, swollen receptacle, or a septicidal capsule; seeds 1 to many per locule, with or without endosperm.

TYPE: *Ochna* L.

A pantropical family of perhaps 30 genera and 400 species. Two quite disparate genera occur in the Lesser Antilles.

CULTIVATED TAXA

The genus *Ochna* is known from a single collection from Guadeloupe (*Stehlé 4880*, at P), identified as *Ochna mossambicensis* Klotzsch. According to P. C. V. Du Toit (Bothalia **11**(4): 517. 1975) this name is a synonym of *Ochna atropurpurea* DC. The species is native to Kenya, Tanzania, and northern Mozambique, and was undoubtedly introduced in cultivation, probably for its attractive flowers. For a more complete synonymy of this taxon, and a discussion regarding the typification of the genus *Ochna*, see N. K. B. Robson, Taxon **11:** 48-52. 1962.

KEY TO THE GENERA

Shrubs or small trees; stipules entire, caducous; fertile stamens 10, the anthers dehiscent by apical pores; staminodes absent; inflorescence a raceme or panicle; fruit an aggregate of drupes borne on a swollen receptacle; petals yellow . . *Ouratea*

Herbs; stipules laciniate, persistent; fertile stamens 5, the anthers dehiscent by longitudinal slits; staminodes present, petaloid or reduced and stamenlike; inflorescence a few-flowered umbelliform fascicle; fruit a 3-valved capsule; petals white to pink . . . . *Sauvagesia*

OURATEA Aublet

Ouratea Aublet, Hist. Pl. Guiane **1:** 397. 1775, nom. cons.

Shrubs or small trees, glabrous throughout. Leaves short-petiolate; blades entire or serrulate, with conspicuous median nerve and numerous lateral secondary veins; stipules entire, caducous. Inflorescences axillary or terminal racemes or panicles. Flowers long-pedicellate; sepals unequal; petals yellow; fertile stamens 10, anthers subsessile, connivent, dehiscent by two oblique apical pores; staminodes absent; ovary 5-carpellate, rarely more, very deeply lobed and appearing ± apocarpous, each lobe unilocular and uniovulate, style gynobasic. Fruit an aggregate of drupes (1 to 5) borne on an enlarged, swollen, fleshy receptacle; seeds without endosperm.

TYPE: *Ouratea guianensis* Aublet.

A genus of ca. 200 species, occurring throughout the New World tropics and tropical Africa. For additional information concerning the species of Mexico, Central America, and the West Indies, see J. Dwyer, Lloydia **7:** 121-145. 1944.

KEY TO THE SPECIES

Leaf blades entire, 15-35 cm long; ovary borne on a distinct gynophore; petals 12-13 mm long; anthers 7-8 mm long; fruits 1.4-1.9 cm long........... *O. longifolia*

Leaf blades serrulate, to 14 cm long; ovary sessile; petals 9-10 mm long; anthers 4-5 mm long; fruits to 1.2 cm long............................. *O. guildingii*

Ouratea guildingii (Planchon) Urban, Symb. Antill. **1:** 364. 1899.

Basionym: *Gomphia guildingii* Planchon, J. Bot. (Hooker) **6:** 12. 1847.
Type: St. Vincent, *Guilding s.n.* (holotype, K; photo, A!).
Syn.: *Gomphia nitida* sensu Griseb., Fl. Brit. W. Indian Is. 105. 1860, pro parte, non (Sw.) M. Vahl (1791).
Gomphia guianensis sensu Griseb., Fl. Brit. W. Indian Is. 105. 1860, pro parte, non Rich. (1792).
Gomphia pyrifolia Griseb., Fl. Brit. W. Indian Is. 105. 1860. (Type: Trinidad, *Crueger s.n.* (holotype, K).)
Ouratea pyrifolia (Griseb.) Engl. *in* C. Martius, Fl. Bras. **12**(2): 320. 1876.
Trichouratea guildingii (Planchon) Tieghem, Ann. Sci. Nat. Bot., sér. 8, **16:** 236. 1902.
Ouratella l'herminieri Tieghem, Ann. Sci. Nat. Bot., sér. 8, **16:** 290. 1902. (Type: Guadeloupe, *l'Herminier s.n.* (holotype, P).)
Ouratea l'herminieri (Tieghem) Urban, Symb. Antill **5:** 430. 1908.

Shrub or small tree to 4(-10?) m tall; bark smooth, gray. Leaves with petioles 1.5-5 mm long; blades oblong-lanceolate to narrowly oblong-elliptic, 2.7-13.6 × 1-4.7 cm, base cuneate or attenuate to rounded, apex acute, margin serrulate, coriaceous, shiny dark green. Inflorescences axillary or terminal panicles; axes appearing glabrous but with microscopic hairs. Flowers with pedicels slender, 0.8-1.5 cm long, with microscopic hairs; sepals ovate-elliptic, 5-7.5(-8) mm long, central, nonimbricate region darker and stiffer than two lateral imbricate segments; petals broadly obovate, 9-10 mm long, yellow; filaments short, thick, to 0.75 mm long, anthers elongate, 4-5 mm long; ovary sessile, ca. 1 mm long, style 4-5 mm long. Fruits obovoid, ca. 1.2 cm long, blue-black, the subtending receptacle obovoid to obconic, 5-8 mm long; seeds obovoid, ca. 1 mm long.

GENERAL DISTRIBUTION: Panama(?), the Lesser Antilles, Trinidad and Tobago, and Venezuela(?).

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Montserrat!, Guadeloupe!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Bois-baguette, bois-café.

Ouratea longifolia (Lam.) Engl. *in* C. Martius, Fl. Bras. **12**(2): 316. 1876.
FIGURE 113.

Basionym: *Ochna longifolia* Lam., Encycl. **4:** 511. 1798.
Type: Guadeloupe, *Badier s.n.* (holotype, P-LA; IDC 6207. 117: II. 7, photo!).
Syn.: *Gomphia longifolia* (Lam.) DC., Ann. Mus. Natl. Hist. Nat. **17:** 417, *t. 10.* 1811.
Ancouratea longifolia (Lam.) Tieghem, Ann. Sci. Nat. Bot., sér. 8, **16:** 225. 1902.

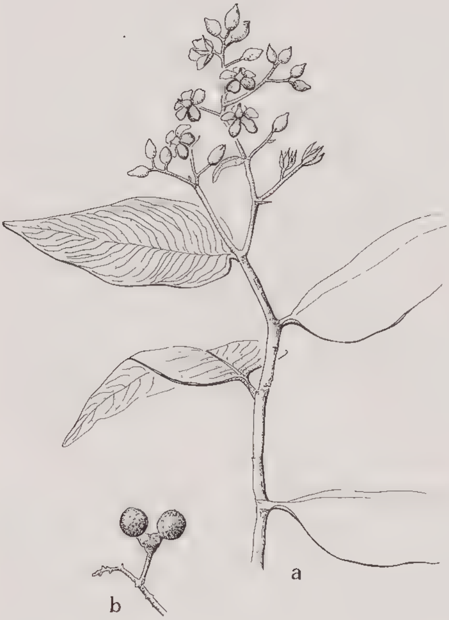
Shrub or small tree to ca. 6 m tall; bark dark red. Leaves with petioles thickened, 5-10 mm long; blades elliptic to oblong-elliptic, (12.5-)16.6-31.5 × 3-8.8 cm, base rounded to obtuse to subcordate, apex acute to acuminate, margin entire or very obscurely crenulate-serrulate toward apex, coriaceous, pale green. Inflorescences axillary or terminal panicles; axes glabrous. Flowers with pedicels 1-2 cm long, glabrous; sepals oblong-ovate, 0.8-1 cm long, central, nonimbricate region darker and stiffer than two lateral imbricate segments; petals obovate-spatulate, 12-13 mm long, golden-yellow; filaments very short, < 0.5 mm long, anthers elongate, 7-8 mm long; ovary 1.5 mm long, borne on a gynophore ca. 2 mm long, style ca. 4.75 mm long. Fruits obovoid (often obliquely so) to subglobose, 1.4-1.9 cm long, black, the subtending receptacle obovoid to subglobose or obloid to transversely ellipsoid, 0.7-1.4 × 0.7-1.2 cm, red; seeds obovoid, to 1.8 cm long.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles, but reported from French and British Guiana.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique.

COMMON NAMES: Bois perdrix, langue à boeuf, café-bois.

NOTES: This species is often incorrectly cited as *Ouratea longifolia* (DC.) Engler because Engler cited *Gomphia longifolia* DC. in synonymy. However, de Candolle clearly cites the Lamarck name when transferring the species to *Gomphia* from *Ochna*, and therefore *Ochna longifolia* must serve as the basionym for the name in *Ouratea.*



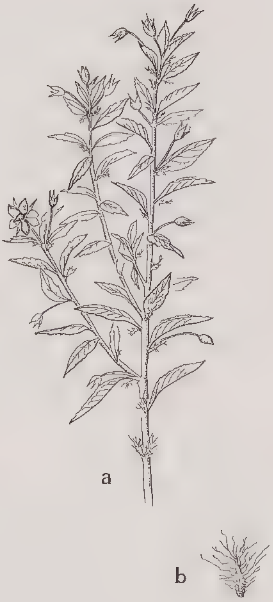


FIGURE 113 (left). *Ouratea longifolia*: a, flowering branch, × 0.4; b, fruit, × 0.4.
FIGURE 114 (right). *Sauvagesia erecta*: a, habit, × 0.4; b, stipule, × 1.0.

EXCLUDED OR DOUBTFUL SPECIES

Ouratea ilicifolia (DC.) Baillon, Hist. Pl. **4:** 366. 1873.

Basionym: *Gomphia ilicifolia* DC., Ann. Mus. Natl. Hist. Nat. **17:** 418. 1811.
Type: Santo Domingo, *Desportes s.n.* (holotype, P-JU; IDC 6206. 961: II. 1, photo!).

Dwyer (Lloydia **7:** 130. 1944) cites the type locality, as well as other specimens, from 'Dominica', an obvious error. This species is restricted to the Greater Antilles, and is easily recognized by its spiny-margined leaves.

Ouratea plumieri Tieghem, Ann. Sci. Nat. Bot., sér. 8, **16:** 256. 1902, nom. nov. for *Ochna jabotapita* var. γ L. (pro parte), Sp. Pl. **1:** 513. 1753.

Type: Plum., Nov. Pl. Amer. *t. 32.* 1703.
Syn.: *Gomphia jabotapita* (L.) Sw., Fl. Ind. Occid. **2:** 740. 1800.
Ouratea jabotapita (L.) Baillon, Hist. Pl. **4:** 366. 1873.

In his initial discussion of this species, van Tieghem did not mention where it was found, although it was known that Plumier visited the West Indies. In a subsequent article (Ann. Sci. Nat. Bot., sér. 9, **5:** 185. 1907), he indicates Martinique as a locality, possibly in reference to the Plumier plate. However, there is no available information to confirm that this plate was based on a collection from Martinique. Plate 32 only illustrates the flowers and fruits, which Plumier indicated as being yellow and red respectively ("Jabotapita pyramidato flore luteo, fructu rubro"). It is impossible, solely on the basis of the type plate, to place this species definitively within *Ouratea.* However, a later description and plate by Plumier (Pl. Amer. 147, *t. 153.* 1758), does shed some light. Plate 153 is the same as Plumier's earlier plate 32 except that a flowering branch with leaves is added. This clearly illustrates that the leaves are serrate, and the accompanying description confirms that the margin has numerous minute teeth. If this is true, then it is possible that *O. plumieri* is synonymous with *O. guildingii* (Planchon) Urban as suggested by Fournet (Fl. Ill. Phan. Guad. Mart. 538. 1978), especially if the original collection was from Martinique.

Another possibility is that Plumier's drawing was based on a specimen from Hispaniola and that the species is synonymous with *O. ilicifolia* (DC.) Baillon as indicated by Dwyer (Lloydia **7:** 130. 1944). This species is known to be quite variable with respect to the marginal teeth, with the specimen seen by Plumier possibly representing one extreme. On the other hand, there are some features of this species that suggest it is distinct from both *O. guildingii* and *O. ilicifolia*: leaves 20 × 6-7 cm, flowers with petals 3× as long as the sepals, and the red fruits immersed in the fleshy receptacle. If or until the Surian collection (at P) can be found that corresponds to Plumier's description and drawings, then it seems best to list this species as a taxon incertae sedis.

SAUVAGESIA L.

Sauvagesia L., Sp. Pl. **1:** 203. 1753.

Herbs, often suffrutescent, glabrous throughout. Leaves short-petiolate to subsessile; blades glandular-serrulate with conspicuous median nerve and numerous lateral secondary veins; stipules laciniate, persistent. Inflorescences axillary, few-flowered, umbelliform fascicles, often reduced to a single flower. Flowers long-pedicellate; sepals ± equal; petals white to pink; fertile stamens 5, anthers dehiscent by longitudinal slits; staminodes present, borne between fertile stamens and petals, the innermost series petaloid, 5 in number, opposite to and shorter than petals, the outer series of numerous sterile filaments; ovary 3-carpellate, syncarpous, with many ovules per locule borne on parietal placentae, style apical. Fruit a septicidal, 3-valved capsule surrounded by persistent calyx; seeds numerous, with endosperm.

TYPE: *Sauvagesia erecta* L.

A tropical genus of about 20 to 30 species, best developed in South America. For additional information see J. Dwyer, Bull. Torrey Bot. Club **72:** 521-540. 1945, and C. Sastre, Sellowia **23:** 9-44. 1971. For detailed information concerning the variation and nomenclature of *S. erecta* see C. Sastre, Caldasia **11**(51): 3-66. 1971.

Sauvagesia erecta L., Sp. Pl. **1:** 203. 1753. FIGURE 114.

Type: Domingo (= Santo Domingo, Dominican Republic), collector unknown (LINN 283.1 & 283.2 are possible types).

Suffrutescent herb to 7 dm tall, erect or decumbent. Leaves with petioles to 6 mm long; blades lance-elliptic to elliptic, 0.5-4.2 × 0.3-1.3 cm, base cuneate-attenuate, apex acute; stipules lanceolate, to 6 mm long, the divisions long and slender. Flowers 1 or 2 per axil; pedicels filiform, 0.5-2.2 cm long; sepals ovate-lanceolate, 4.5-9 mm long, apex setiform, margin entire or with obscure reddish cilia; petals broadly obovate, 4-7 × 3.5-5.5 mm, white to rose, delicate; petaloid staminodes oblong, 2.5-4 mm long, apex rounded to truncate, the remaining staminodes filamentous with a round to subreniform apex; fertile stamens with filaments to ca. 0.5 mm long, anthers to 2 mm long; ovary ovoid, 1-1.5 mm long, style 1.25-2 mm long. Fruits oblong-ovoid, ca. as long as sepals; seeds ovoid-ellipsoid, 0.5-0.6 mm long, testa conspicuously reticulate.

GENERAL DISTRIBUTION: Pantropical. In the New World ranging from southern Mexico to northeast Argentina, and Cuba south through the Lesser Antilles to Trinidad. Also found across central Africa and Madagascar.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Thé, thé-montagne, thé-savane, herbe Saint-Martin, herbe à thé.

NOTES: Dwyer (loc. cit. p. 529) incorrectly lists the type locality as Dominica, a misinterpretation of Linnaeus's citation as "Habitat in Domingo," which refers to Santo Domingo in the Dominican Republic. Sastre (Caldasia **11**(51): 5 & 27. 1971) cites Martinique as the type locality on the assumption that the specimen studied by Linnaeus was collected by Surian and drawn by Plumier. There is no indication that this is the case, but it is possible that Linnaeus saw a Plumier plate corresponding to this species during his stay in Holland (as part of the Groningen set of Plumier plates).

MARCGRAVIACEAE

by Hollis G. Bedell

MARCGRAVIACEAE Choisy *in* DC., Prodr. **1:** 565. 1824.

Epiphytic or terrestrial lianas and shrubs, rarely small trees. Leaves alternate, usually short-petiolate, simple, glabrous, often with hypophyllous glands, occasionally distichous and dimorphic (*Marcgravia*); estipulate. Inflorescences terminal or axillary racemes or umbelliformly contracted racemes; bracts subtending all or many flowers, these usually transformed into nectaries and variously inserted on pedicels. Flowers perfect, actinomorphic, 2-bracteolate, the bracteoles sepaloid, persistent; sepals 4 or 5, imbricate, leathery and persistent; petals 4 or 5, free, basally connate or connate into a deciduous calyptra (*Marcgravia*); stamens (3 or) 5 to many, filaments flattened, free or basally connate and often adnate to base of corolla, anthers 4-locular, basifixed, longitudinally dehiscent; ovary superior, completely or incompletely 3- to 6-locular, ovules numerous, stigma mostly sessile, radiate. Fruits globose, indehiscent or loculicidally dehiscent from base, apiculate through persistent style, coriaceous, mesocarp fibrous; seeds small, numerous, with reticulate coat and often surrounded by brightly colored, mucilaginous aril.

TYPE: *Marcgravia* L.

A neotropical family of 7 genera and some 125 species in Central America, northern South America, and the West Indies; 4 genera and 6 species occur in the Lesser Antilles.

KEY TO THE GENERA

1. Inflorescences racemose; flowers 5-merous; leaves spirally arranged; all flowers subtended by a nectariferous bract.
    2. Stamens 20 or more; nectariferous bract inserted at various distances from calyx, but never at base.
        3. Inflorescence an elongate raceme (20-)35-65 cm long; flowers more than 100; pedicels 0.5-1.3 cm long; nectariferous bracts tubular-saccate, 2-4 cm long .... *Norantea*
        3. Inflorescence a short raceme, 4-25(-35) cm long; flowers less than 75; pedicels 2-5 cm long; nectariferous bracts cymbiform 0.3-0.8 cm long .... *Schwartzia*
    2. Stamens 3 to 5; nectariferous bract inserted at base of calyx.... *Ruyschia*
1. Inflorescences umbellate or subumbellate; flowers 4-merous; leaves distichous; only central flowers subtended by a nectariferous bract............ *Marcgravia*

MARCGRAVIA L.

Marcgravia L., Sp. Pl. **1:** 503. 1753.

Syn.: *Marcgrafia* Gled., Syst. Pl. Stamin. Situ 231. 1764, orth. mut.
Jatrops Rottb., Acta Lit. Univ. Hafn. **1:** 293. 1778, nom. superfl.
Marggravia Willd., Ges. Naturf. Freunde Berlin Mag. Neuesten Entdeck. Gesammten Naturk. **1:** 172. 1808, orth. mut.
Marcgraavia Griseb., Abh. Königl. Ges. Wiss. Göttingen **7:** 184. 1857; Syst. Veg. Karaiben 36. 1857, orth. mut.

Sprawling epiphytic or terrestrial shrubs and lianas with dimorphic leaves and branches; juvenile (sterile) branches flattened, creeping, appressed to substrate and attached by adventitious roots, bearing small, distichous leaves; adult (fertile) branches free, pendulous or erect, terete, often provided with wartlike lenticels on angles, bearing distichous leaves. Juvenile leaves sessile; blades rotund to slightly obovate, margin with highly reduced, theoid teeth, thin and membranaceous, producing non-ciliate fracture when broken perpendicular to midvein, glabrous. Adult leaves with blades oblong, elliptic, to oblanceolate, base acute to rounded, apex acute to acuminate, in some species with long drip tip, margin often with highly reduced, theoid teeth, two small, basilaminar glands always present, laminar glands 2 to 45 per side in one or more fairly uniform rows, rarely lacking, membranaceous and producing nonciliate fracture when broken perpendicular to midvein, or coriaceous and producing slightly ciliate fracture when broken perpendicular to midvein, glabrous. Inflorescences contracted, subumbellate racemes, or umbels, erect or pendulous; rachis to 5 cm long with 8 to 50(to 60) flowers; nectariferous bracts (2 to)4 to 12 on central, sterile or abortive, flowering pedicels, urceolate, saccate, flask- or pitcher-shaped, adnate to pedicel and pendulous, or recurved and pendulous, various shades of cream, green, or bright orange-red. Fertile flowers 4-merous, light green, cream, to various shades of red, inserted on pedicels at oblique angles or erect; pedicels slender to stout, 0.7-5.5 cm long, warty; petals connate into calyptra, conical to almost pyramidal, deciduous; stamens 10 to 65 in one or several whorls, filaments linear and round in cross section, free and occasionally with base adnate to corolla, anthers subsagittate or linear with yellow to magenta pollen; ovary subglobose or ovoid-conical, completely or incompletely (4 or)6- to 10(or12)-locular, style slender, persistent, stigma smooth or slightly lobed. Fruits globose, reddish green to red or red-purple; seeds hemispherical to reniform, reticulate, shiny black or red-black.

TYPE: *Marcgravia umbellata* L.

A large genus of perhaps 60 species ranging from central Mexico south to northwestern South America (Bolivia), the Amazon Basin, the Brazilian Shield, Guayana Highlands, and throughout the West Indies.

KEY TO THE SPECIES

1. Inflorescences pendulous; flowers angled on pedicels.
    2. Flowers small, calyptra 0.6-0.9 cm long, apex attenuate; pedicels 1.8-2.2 cm long; leaves leathery, 6-10 cm long; stamens 8 . . . . *M. lineolata*
    2. Flowers large, calyptra 0.8-1.2 cm long, apex rounded; pedicels 2.2-3.5 cm long; leaves not leathery, 10-13 cm long; stamens 14 to 18 . . . . *M. umbellata*
1. Inflorescences erect; flowers erect on pedicels . . . . *M. trinitatis*

Marcgravia lineolata Krug & Urban, Bot. Jahrb. Syst. **21:** 517. 1896.

Type: Martinique, without locality, *Hahn 1663* (lectotype, M!).

Sprawling, high-climbing liana. Leaves with petioles 4-5 mm long; blades elliptic to elliptic-obovate, 6-10 × 2-3 cm, base obtuse to rounded, apex acute to short-acuminate, margin recurved, especially toward base, midvein sulcate above, convex and subprominent beneath, lateral veins obscure on both surfaces, highly sclerified, thick and coriaceous, leathery, hypophyllous glands 4 to 6 per side, 2-4 mm from margin on lower half of lamina, with submarginal, punctate, theoid teeth. Inflorescences 1 cm long, with 16 to 18(to 22) fertile flowers and 4(or 5) nectaries; nectaries tubular-saccate, 2-2.5 cm long with smooth or slightly revolute margin around orifice, on pedicels 4-7 mm long; no abortive flowers evident. Flowers inserted on pedicels at ca. 45° angle; pedicels 1.8-2.2 cm long, becoming warty as fruit matures; bracteoles minute and flaplike, 3-4 mm distant from calyx; calyptra conical, 7-9 mm long, apex somewhat attenuate; stamens 8. Fruits 1-1.2 cm in diameter.

GENERAL DISTRIBUTION: Restricted to moist, montane regions in the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Martinique!, St. Lucia!.

Marcgravia trinitatis C. Presl, Abh. Königl. Böhm. Ges. Wiss. ser. 5, **3:** 552. 1845.

Type: Trinidad, without locality, *Wrba s.n.*, not traced.
Syn.: *Marcgravia rectiflora* Triana & Planchon, Ann. Sci. Nat. Bot., sér. 4, **17:** 364. 1862. (Lectotype: Jacq., Select. Stirp. Amer. Hist. *t. 96.* 1763.)
Marcgravia rectiflora Triana & Planchon var. *jacquini* Triana & Planchon, Ann. Sci. Nat. Bot., sér. 4, **17:** 366. 1862. (Type: Jacq., Select. Stirp. Amer. Hist. *t. 96.* 1763.)

Sprawling, climbing, hemiepiphytic liana. Leaves with thick petioles, 1-2 mm long; blades elliptic-oblong, 10-11 × 2.3-2.6 cm, base acute to obtuse, frequently unequal, apex acute to acuminate, midvein obscure to sulcate above, prominent and convex beneath, lateral veins obscure on both surfaces, highly sclerified, coriaceous and leathery, hypophyllous glands 2 per side, 2-4 mm from midvein. Inflorescences pendulous and recurved, of 5 to 8, light green, fertile flowers and 2 or 3 nectaries; nectaries tubular-saccate, 2.5-2.7 cm long, frequently with numerous lenticels near base, lip small, acute, emarginate, borne on pedicels 5 mm long. Flowers erect, on pedicels 4-5 cm long, these covered with light brown lenticels; bracteoles appressed to calyx; calyptra obtuse-conical, 1.2-1.4(-1.7) × 0.6-0.8 cm; stamens 55 to 60(to 63). Fruits 0.8-1 cm in diameter.

GENERAL DISTRIBUTION: Restricted to humid, montane forests above 400 m in the southern Lesser Antilles and Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, St. Lucia!.

Marcgravia umbellata L., Sp. Pl. **1:** 503. 1753. FIGURE 115.

Type: Plum., Nov. Pl. Amer. *t. 29.* 1703.

Sprawling, hemiepiphytic liana. Leaves with petioles slender, 7-9 mm long; blades ovate to elliptic, 10-13 × 3.2-5 cm, base rounded to cordate, apex acuminate, midvein sulcate above, convex and prominent beneath, lateral veins visible on both surfaces, non-sclerified, occasionally with 2 hypophyl-

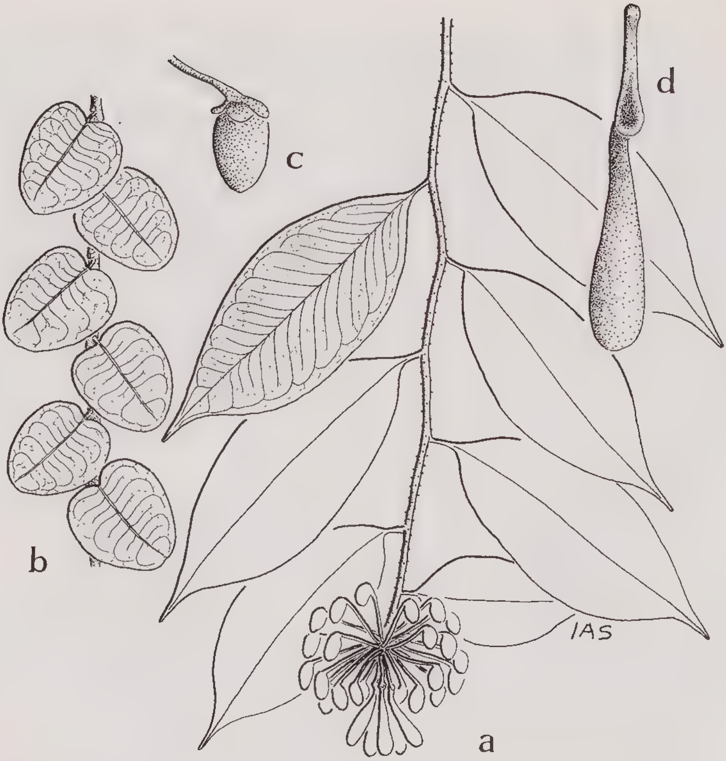


FIGURE 115. *Marcgravia umbellata*: a, flowering branch with mature foliage, × 0.8; b, juvenile foliage, × 0.8; c, flower bud with calyptrate corolla inserted obliquely on pedicel, × 1.0; d, tubular saccate nectary, × 3.0.

lous glands near base, 1 cm from midvein. Inflorescences pendulous, of 23 to 30, light green, fertile flowers and 4 or 5 nectaries; nectaries tubular-saccate, 2.5-3.5 cm long, margin slightly recurved around orifice, borne on pedicels 0.8-1 cm long, with minute, abortive flowers at apex of pedicel. Flowers inserted at right angles to pedicel; pedicels (2.2-)2.8-3.5 cm long, covered with reddish brown lenticels; bracteoles appressed to calyx; calyptra conical-rounded, 0.8-1.2 × 0.5-0.7 cm; stamens 14 to 16(to 18). Fruits 1-1.5 cm in diameter.

GENERAL DISTRIBUTION: Restricted to moist, montane regions in the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, St. Kitts!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

NOTE: There has traditionally been much taxonomic and nomenclatural confusion concerning the circumscription of this species. For additional information see H. Bedell, in prep.

NORANTEA Aublet

Norantea Aublet, Hist. Pl. Guiane **1:** 544, *t. 220.* 1775.

Syn.: *Ascium* Schreber, Gen. Pl. 358. 1789, nom. superfl.
Ascium M. Vahl, Eclog. Amer. **2:** 41. 1798, nom. superfl.
Ascyum M. Vahl ex Choisy *in* DC., Prodr. **1:** 566. 1824, orth. mut. of *Ascium* M. Vahl in synonymy.
Norantea Aublet subg. *Sacciophyllum* Delpino, Atti Soc. Ital. Sci. Nat. **12:** 181. 1869. (Lectotype: *Norantea guianensis* Aublet.)
Norantea Aublet section *Sacciophyllum* (Delpino) Gilg & Werderm. *in* Engl. & Prantl, Nat. Pflanzenfam. ed. 2, **21:** 101. 1925.

Hemiepiphytic or terrestrial lianas and sprawling shrubs. Leaves with blades elliptic to elliptic-obovate, 9-12(-15) × 4.5-6 cm, base cuneate, apex acute to slightly rounded or emarginate through loss of mucro, margin entire, slightly revolute, and always with two basilaminar glands and occasionally with (1 or)2 or 3 laminar glands per side inside loops of secondary veins. Inflorescences dense racemes, (25-)30-60(-85) cm long with (120 to)150 to 300(to 350) flowers; nectariferous bracts subtending each flower, fleshy, pendulous, tubular-saccate, occasionally basally bifid and rarely warty, with round to slightly oval orifice and apiculate lip, bright red or orange-red; nectaries (2-)2.5-3.5(-4) × 0.5-0.7 cm. Flowers bright red to crimson, or orange; petals free to slightly connate at base, imbricate in bud, strongly reflexed at anthesis; stamens 20 to 30, filaments free, basally adnate to corolla, linear and more or less triangular in cross section, anthers linear to subsagittate with bright yellow pollen; ovary pyriform to conical, completely 5-locular, style cylindrical, stigma smooth or slightly 5-lobed. Fruits berrylike, globose, 0.4-1.2 cm in diameter, magenta or purplish red at maturity; seeds reniform, reticulate, and reddish black.

TYPE: *Norantea guianensis* Aublet.

A widespread genus of two species. *Norantea goyasensis* Cambess. is found in the upland forests and savannas in southern Brazil (Goias and Matto Grosso) and neighboring Bolivia, whereas *N. guianensis*, with two subspecies, is widespread in the humid lowland forests of Central and South America, and the Antilles.

Norantea guianensis Aublet ssp. **guianensis**, Hist. Pl. Guiane **1:** 554, *t. 220.* 1775. FIGURE 116.

Type: Guiane, swampy marsh, *Aublet s.n.* (lectotype, P!; photos, F!, NY!; isolectotype, BM!).
Syn.: *Ascium violaceum* M. Vahl, Eclog. Amer. **2:** 41, *pl. 20.* 1798, nom. superfl. citing *Norantea guianensis* Aublet.
Ascium aubletti Sprengel, Syst. Veg. **2:** 599. 1825, nom. superfl.

Norantea zeledoniana Standley & L. O. Williams, Ceiba **3**: 123. 1952. (Type: Costa Rica, San José, cultivated at the home of Amparo de Zeledon, 24 Apr 1945, *Pacheco 67* (holotype, F!; isotype, PMA).)

Sprawling terrestrial or epiphytic shrubs, occasionally lianas. Leaves obovate to slightly elliptic, apex usually rounded. Nectaries tubular-elongate with rounded to somewhat oval orifice and markedly apiculate lip, often

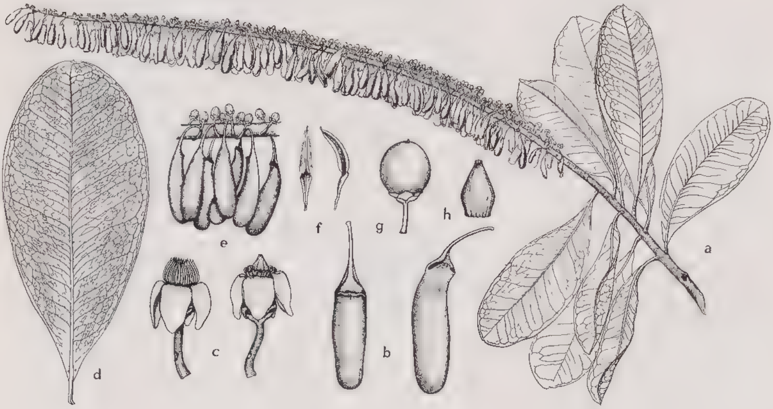


FIGURE 116. *Norantea guianensis*: a, flowering branch, × 0.3; b, tubular nectary with apiculate lip, × 1.0; c, flowers with strongly recurved petals; one flower (left) with anthers at preanthesis, the other flower (right) with anthers dehisced, but filaments still present, × 1.0; d, leaf showing venation and basal hypophyllous glands, × 0.6; e, portion of inflorescence showing erect flowers and pendulous nectaries, × 2.0; f, stamens, × 0.6; g, globose fruit with persistent sepals and bracteoles, × 1.0; h, pyriform ovary with longitudinal striations and sessile stigma, × 0.9.

bifid at base, rarely warty, reddish to crimson. Flowers on pedicels 1-1.2 mm long; stamens 25 to 30.

GENERAL DISTRIBUTION: Restricted to the Caribbean Basin and its associated drainage systems, and occasionally along the Pacific coast in Colombia.

DISTRIBUTION IN LESSER ANTILLES: Montserrat! (cultivated).

RUYSCHIA Jacq.

Ruyschia Jacq., Enum. Syst. Pl. 2, 17. 1760; Select. Stirp. Amer. Hist. 75. 1763.

Syn.: *Vargasia* A. Ernst, Vargas Consid. Bot. 23. 1877, non Bertero ex Sprengel (1825), nec DC. (1836).
Caracasia Szyszyl. *in* Engl. & Prantl, Nat. Pflanzenfam. **3**(6): 169. 1893, a valid substitution. Type: *Vargasia tremadena* A. Ernst = *R. tremadena* (A. Ernst) Lundell.

Epiphytic shrubs, occasionally sprawling. Leaves short-petiolate; blades oblanceolate-oblong, rarely obovate or lanceolate, base obtuse or rounded, rarely cuneate, apex mucronulate, apiculate, or obtuse, margin usually revolute, thick and coriaceous, glaucous and producing ciliate fracture when broken perpendicular to midrib, always with two basilaminar glands and often with rows of hypophyllous glands parallel to midvein. Inflorescences dense racemes; rachis 15-30 cm long, of 20 to 50(to 150) flowers, each subtended by sessile, gibbous to semiglobose, mostly solid, nectariferous bract attached at base of calyx. Flowers with slender to stout pedicels 3-12 mm long; petals free or basally connate, imbricate in bud and strongly reflexed at anthesis; stamens 3 or 5, filaments free but with base adnate to corolla, linear and flattened, anthers sagittate to cordate with yellow pollen; ovary globose to pyriform, bicarpellate, style sessile to subsessile, stigma slightly capitate. Fruits berrylike and globose, pericarp reddish green to red-purple; seeds reniform, reticulate, and reddish black.

TYPE: *Ruyschia clusiifolia* Jacq.

A small genus of eight or nine species; four in Central America, three or four in northwestern South America, and one in the Lesser Antilles.

Ruyschia clusiifolia Jacq., Enum. Syst. Pl. 17. 1760; Select. Stirp. Amer. Hist. 75, *t. 51, fig. 2.* 1763. FIGURE 117.

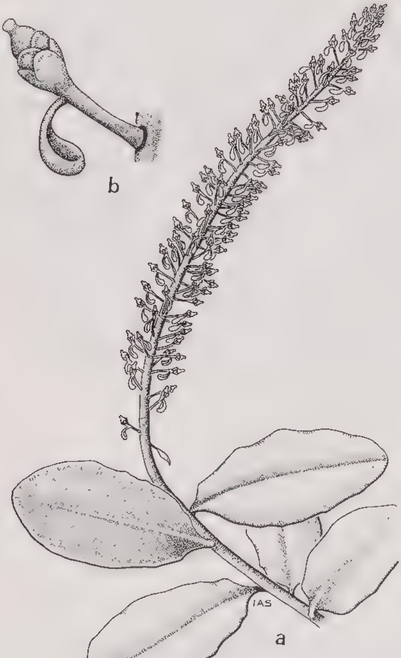
Type: Jacq., loc. cit. *t. 51, fig. 2.* 1763.
Syn.: *Ruyschia laurifolia* C. Presl, Abh. Königl. Böhn. Ges. Wiss., ser. 5, **3**: 454. 1845. (Type: Guadeloupe, *Perrottet s.n.*, not yet traced.)
Ruyschia cymbadenia Delpino, Atti Soc. Ital. Sci. Nat. **12**: 180. 1869, homotypic synonym.
Ruyschia fragrans J. Moritz ex Wittm. *in* C. Martius, Fl. Bras. **12**(1): 348. 1878, nom. nud. in synonymy.

Sprawling, hemiepiphytic shrub. Leaves with petioles broad and canaliculate, 4-7 mm long; blades obovate, 7-9 × 3.5-5 cm, base rounded to slightly cordate, apex obtuse to rounded, margin recurved, venation obscure on both surfaces, heavily sclerified, coriaceous and leathery, hypophyllous glands small, 2 to 4 per side, ca. 1.5 cm from midvein. Inflorescences 15-22 cm long with 95 to 130 yellow-green flowers. Flowers on pedicels 5-8 mm long; nectaries solid, fleshy, gibbose, 4-7 mm long; petals 2-3 mm long; stamens 5. Fruits 5-6 mm in diameter, reddish green.

General distribution: Lesser Antilles and Trinidad.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!.

Common names: Bois-josé, souroube, aralie petite-feuille.



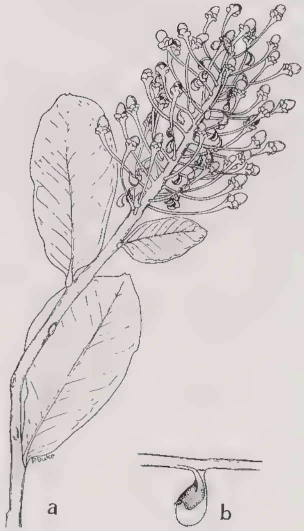


Figure 117 (left). *Ruyschia clusiifolia*: a, flowering branch, × 0.4; b, pedicel with gibbose nectary subtending a young fruit, × 1.0. Figure 118 (right). *Schwartzia spiciflora*: a, flowering branch, × 0.4; b, nectary, × 1.0.

Schwartzia Vell. Conc., Fl. Flumin. **5:** 84. 1829.

Sprawling terrestrial or epiphytic shrubs, occasionally small trees. Leaves sessile or petiolate; blades oblong, elliptic, or obovate, occasionally asymmetrical, venation obscure or impressed above, obscure to prominent beneath, coriaceous, always with two small, basilaminar, hypophyllous glands and with 1 to 8 laminar glands per side, glabrous. Inflorescences racemose with axis (4-)6-20(-35) cm long, of 8 to 60(to 190) flowers, each subtended by stalked or sessile, cyathiform, tubulariform, helmet- or pouch-shaped, light green to yellowish white or brick red to red-maroon nectariferous bract on petiole adnate to lower third of pedicel. Flowers 5-merous, light green, cream, or red to red-purple; pedicels slender, (2.5-)3-4(-5) cm long; petals free or variously connate, imbricate in bud and strongly reflexed at anthesis or post-anthesis, oblong or oblanceolate; stamens (5 to)12 to 25(to 27) or 50 to 80 in one or several whorls, filaments linear to broad and somewhat flattened, free or basally connate and occasionally adnate to base of corolla, anthers subsagittate to sagittate with yellow or magenta pollen; ovary conical, pyriform, or turbinate, completely or incompletely 3- to 5-locular, style cylindrical or slightly conical, stigma smooth or occasionally 4- to 5-lobed or radiate. Fruits globose, pericarp reddish green to red, red-purple, or peach colored to bright red-orange; seeds hemispherical or reniform, reticulate, and shiny black or red-black.

TYPE: *Schwartzia glabra* Vell. Conc. (= *Schwartzia brasiliensis* (Choisy) Bedell).

A genus of 14 species; three in Costa Rica and Panama, six in Colombia and Ecuador, two in Peru and northeastern Bolivia, one in the Lesser Antilles and northeastern Venezuela, and two in eastern Brazil.

Schwartzia spiciflora (A. L. Juss.) Bedell, comb. nov.

FIGURE 118.

Basionym: *Marcgravia spiciflora* A. L. Juss., Ann. Mus. Natl. Hist. Nat. **14:** 402, *t. 25.* 1809.

Type: Guadeloupe, *Richard s.n.* (holotype, P-JU!; photos, F!, MICH!, MO!, US!; IDC 6206. 882: I. 1, photo!; isotypes, C!, P!).

Syn.: *Ascium berteroi* Sprengel, Syst. Veg. **2:** 599. 1825 (as "Berterii"). (Type: "*Ind*-[iae]. *occid*[entalis]. Berter," (holotype possibly at TO).)

Norantea berteroi (Sprengel) Don, Gen. Hist. **1:** 624. 1831 (as "Berterii").

Norantea jussiaei Triana & Planchon, Ann. Sci. Nat. Bot. sér. 4, **17:** 233. 1862, nom. superfl.

Norantea spiciflora (A. L. Juss.) Krug & Urban, Bot. Jahrb. Syst. **21:** 520. 1896.

Sprawling epiphytic shrubs to 2 m tall. Leaves petiolate; blades asymmetrical, one half obovate, the other half elliptic to ovate, (7-) 9-12 × 3-6 cm, base cuneate, apex retuse, coriaceous, occasionally with single, large, hypophyllous gland on obovate half. Inflorescence axis 5-10 cm long with (20 to)30 to 50(to 60) flowers; nectariferous bracts cymbiform, thick and leathery, dull brick red. Flowers dull to bright red or red-brown; pedicels slender, (2.5-)3-4(-5) cm long; petals connate except at apex, strongly reflexed at post-anthesis; stamens (20 to)22(or 23). Fruits 2-2.5 cm in diameter, reddish green.

GENERAL DISTRIBUTION: Lesser Antilles and northern coast of Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, St. Vincent!.

COMMON NAME: Yabrico marrou.

THEACEAE

by Allan J. Bornstein

THEACEAE D. Don, Prodr. Fl. Nepal. 224. 1825. (Mirbel, Nouv. Bull. Sci. Soc. Philom. Paris **3:** 382. 1813 ('Théacées').)

Trees or shrubs. Leaves alternate, simple, entire to serrate, penninerved, generally coriaceous and persistent; stipules absent. Inflorescences axillary, short-racemose (appearing fasciculate) or the flowers solitary. Flowers regular, bisexual or functionally unisexual (the plants dioecious), immediately subtended by 2 bracteoles; sepals 5, distinct, imbricate, persistent; petals 5, distinct or partially connate, imbricate; stamens numerous, rarely only 5 or 10, uni- or biseriate (less often in 3 or 4 series), filaments free or basally connate, often adnate to petals, anthers bithecate, latrorse, connective generally prolonged into an apiculate appendage; gynoecium 2- to 5-carpellate, ovary superior, with locules equal to number of carpels, ovules numerous per locule on axile placentae, or pendulous from apex of locule, styles distinct, as many as carpels, or in our species solitary and distally lobed. Fruit a capsule (elsewhere) or an indehiscent, drupelike berry, fleshy or dry; seeds 1 to many per locule, with endosperm scanty or absent.

TYPE: *Thea* L.

A widespread tropical or subtropical family of 35 to 40 genera and over 600 species.

KEY TO THE GENERA

Leaves distichous, blades serrulate to serrate; flowers functionally unisexual (plants dioecious), in short racemes; stamens uniseriate; sepals entire, ciliate . . . . *Freziera*

Leaves spirally arranged, blades entire; flowers bisexual, solitary; stamens 2- to 4-seriate (rarely uniseriate); sepals (outer 2) typically glandular-denticulate, eciliate . . . . *Ternstroemia*

FREZIERA Willd.

Freziera Willd., Sp. Pl. **2:** 1179. 1799, nom. cons.

Syn.: *Eroteum* Sw., Prodr. 5, 85. 1788, nom. rejic. (Type: Not designated.)
Lettsomia Ruíz & Pavón, Fl. Peruv. Prodr. **4:** 77. 1794, nom. rejic. (Type: Not designated.)

Dioecious shrubs or small trees. Leaves distichous, petiolate; blades serrulate, occasionally subentire, chartaceous to coriaceous. Inflorescences short-racemose (appearing fasciculate), or rarely the flowers solitary. Flowers functionally unisexual, appearing hermaphroditic, pedicellate; bracteoles opposite, inserted just below calyx; sepals entire, ciliate; petals ± distinct; stamens 15 to 35, rarely more or less, uniseriate, staminodial in carpellate flowers; gynoecium 3- to 5-carpellate, present in staminate flowers but not maturing, conical or pyriform, ovary with 20 to 50 ovules per locule (more or less elsewhere), style tapering, persistent, stigmatic lobes flaring (or erect). Fruit a fleshy, indehiscent, drupelike berry; seeds reniform, 10 to 50 per locule, testa reticulate.

TYPE: *Freziera undulata* (Sw.) Willd., typ. cons.

A neotropical genus of 46 species ranging from southern Mexico through Central America and portions of the West Indies to central Bolivia. For additional information see A. L. Weitzman, Systematics of *Freziera*, unpubl. Ph.D. dissertation, Harvard University, 1987.

KEY TO THE SPECIES

Leaves obovate to ovate-elliptic, base deeply cordate, subamplexicaul, densely villous below . . . . *F. cordata*
Leaves lanceolate to ovate, base cuneate to attenuate, glabrous to sericeous below . . . . *F. undulata*

Freziera cordata Tul., Ann. Sci. Nat. Bot. sér. 3, **8:** 334. 1847.

Type: "Maracaybo," *Plée s.n.* (holotype, P).
Syn.: *Ternstroemia amplexifolia* Sieber ex Choisy, Mem. Soc. Phys. Genève **14:** 122. 1855, nom. nud.
Eroteum cordatum (Tul.) Kuntze, Revis. Gen. Pl. **1:** 62. 1891 (as 'Erotium').
Eurya cordata (Tul.) Szyszyl. *in* Engl. & Prantl, Nat. Pflanzenfam. 3, **6:** 190. 1893.

Shrub or small tree 0.5-4 m tall; twigs and branches terete, villous. Leaves with petioles 4-8 mm long, villous; blades obovate to ovate-elliptic, 7-19 × 3.6-8 cm, base deeply cordate, with lobes asymmetric, auriculate, one as long as petiole, the other longer and clasping stem, apex acute to short-acuminate, margin serrulate, lateral veins 13 to 17 pairs, prominent especially below, coriaceous, sericeous and densely villous on both surfaces, glabrescent above. Inflorescence axis to 5 mm long, with 1 to 4 flowers; bracts triangular, 2.4-4 × 2.6-2.9 mm, densely villous. Flowers with pedicels 1.5-2.1 mm long, villous; bracteoles broadly ovate, ± equal, 3.4-4.6 × 3.9-5.1 mm, villous; sepals very broadly ovate, decreasing in size toward inside, 4.8-6 × 4.8-5.8 to 4.2-4.8 × 3.9-4.3 mm, margin ciliate (the hairs caducous), centrally villous without; corolla urceolate, petals slightly connate basally or distinct, 9.3-10.4 × 4.5-6.7 mm. Staminate flowers with 15 stamens, free or slightly adnate basally, filaments unequal, 0.9-1.6 mm long, anthers linear, 2.7-3.8 mm long, with conical apiculum to 0.6 mm long; gynoecium narrowly conical, 4.5-6.4 mm long, 3-carpellate, each locule with ca. 40 ovules, stigmatic lobes erect. Carpellate flowers with 17 staminodes, free, linear, 4.4 mm long; gynoecium narrowly pyriform, ca. 4.4 mm long, 3-carpellate, each locule with 45 to 50 ovules, stigmatic lobes flaring. Immature fruits pyriform, mature fruits unknown.

General distribution: Endemic to Lesser Antilles.

Distribution in Lesser Antilles: Dominica!, Martinique!.

Common names: Bois d'épice, goyavier-montagne.

Note: The type locality is questionable as no other frezieras are known from the Maracaibo area of Venezuela, and this species has only been recollected at or near the summits of Mt. Pelée and Morne Anglais on Martinique and Dominica, respectively. It is known that Plée collected on Martinique before and after his trip to Maracaibo, and therefore it seems likely that this collection originated from that island.

Freziera undulata (Sw.) Willd., Sp. Pl. **2:** 1179. 1799. Figure 119.

Basionym: *Eroteum undulatum* Sw., Prodr. 85. 1788; Fl. Ind. Occid. **2:** 974. 1800, as *Freziera undulata.*

Type: Weitzman (1987 and pers. comm.) intends to designate as lectotype *Masson s.n.* (BM) from St. Kitts, with isolectotypes at GH, K, and S.

Syn.: *Freziera hirsuta* Smith *in* Rees, Cycl. 15. 1810. (Type: St. Vincent, *Anderson s.n.* (holotype, LINN-Sm 949.2, IDC 5073. 437: II. 7, photo!; isotype, K; probable isotype, G).)

Ternstroemia salicifolia DC., Mém. Soc. Phys. Genève **1:** 411. 1822. (Type: Guadeloupe, in 1820, *Bertero s.n.* (holotype, G-DC, IDC 2562. 219: I. 1, photo!; probable isotype, MO).)

Ternstroemia dentata Sprengel ex DC., Mém. Soc. Phys. Genève **1:** 411. 1822, nom. nud., non *Taonabo dentata* Aublet, Hist. Pl. Guiane **1:** 569. 1775.

Freziera perrottetiana Tul., Ann. Sci. Nat. Bot. sér. 3, **8:** 332. 1847. (Type: Guadeloupe, in 1824, *Perrottet 263* (holotype, P; possible isotype, Guadeloupe, in 1824, *Perrottet s.n.* (G, 2 sheets)).)

Freziera elegans Tul., Ann. Sci. Nat. Bot. sér. 3, **8:** 336. 1847. (Syntypes: Guadeloupe, June 1843, *L'Herminier s.n.* (holosyntype, P; isosyntype, P; possible isosyntype, Guadeloupe, sine anno, *L'Herminier s.n.* (G, 2 sheets)); Guadeloupe, in 1842, *Perrottet s.n.* (holosyntype, P; isosyntype, P; possible isosyntype, Guadeloupe, sine anno, *Perrottet s.n.*, (G)).)

Cleyera elegans (Tul.) Choisy, Mém. Soc. Phys. Genève **14:** 110. 1855.

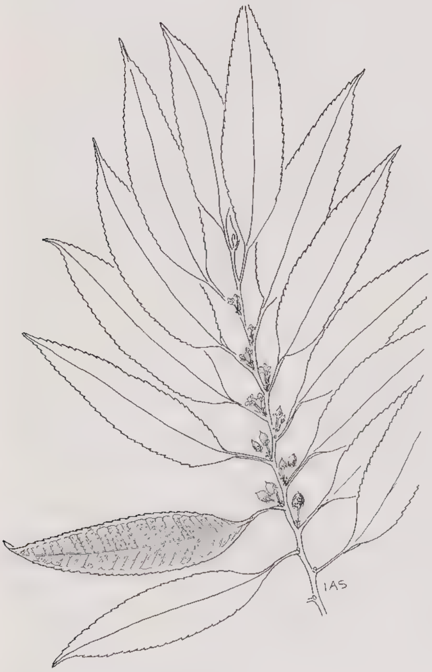
Freziera salicifolia (DC.) Choisy, Mém. Soc. Phys. Genève **14:** 122. 1855.

Eurya undulata (Sw.) Blume, Ann. Mus. Bot. Lugdano-Batavum **2:** 105. 1856.

Freziera salicifolia (DC.) Choisy var. *undulata* (Sw.) Wawra *in* C. Martius, Fl. Bras. **12**(1): 283. 1886.

Eroteum hirsutum (Smith) M. Gómez, Anal. Soc. Esp. Hist. Nat. **19:** 222. 1890, excl. spec. cit.
Freziera undulata (Sw.) Willd. var. *hirsuta* (Smith) Krug & Urban *in* Urban, Bot. Jahrb. Syst. **21:** 543. 1896.
Freziera undulata (Sw.) Willd. var. *elegans* (Tul.) Krug & Urban *in* Urban, Bot. Jahrb. Syst. **21:** 543. 1896.

Shrub or small tree 1-8 m tall; branches terete, twigs square, glabrous or golden-tomentose, ± glabrescent. Leaves with petioles 1.3-5.6 cm long, glabrous or tomentose; blades lanceolate to narrowly elliptic to ovate, 3.7-15.4 × 1.2-4.4 cm, base unequal, cuneate to attenuate, apex acuminate, margin undulate, serrulate to serrate, lateral veins 10 to 18 pairs, relatively inconspicuous, chartaceous to subcoriaceous, glabrous above, glabrous to sericeous below. Inflorescence axis to 5 mm long, with 1 to 5 flowers; bracts narrowly triangular, 1.5-2.8 × 1-1.5 mm, densely hirsute. Flowers with pedicels 2.4-6.5 mm long, glabrous to hirsute; bracteoles triangular, 1-2.2 × 1.3-2.4 mm,



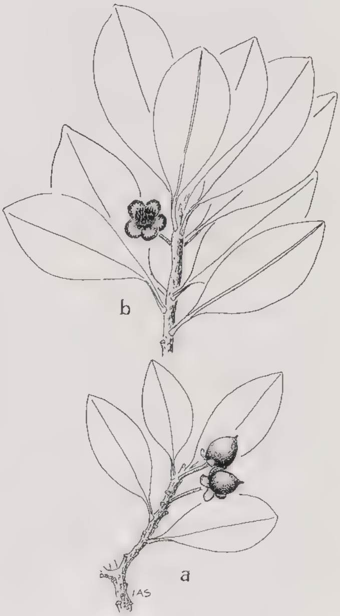


FIGURE 119 (left). *Freziera undulata*, × 0.4. FIGURE 120 (right). *Ternstroemia elliptica:* a, fruiting branch, × 0.4; b, flowering branch, × 0.4.

ciliolate, glabrous or centrally hirsute to densely hirsute throughout; sepals triangular to broadly ovate, unequal, decreasing in size toward inside, 2-2.9 × 1.8-2.9 mm, ciliolate, glabrous to centrally hirsute without; corolla urceolate, petals distinct or slightly connate basally, ovate, 4.9-5.9 × 2.3-3.8 mm. Staminate flowers with 13 to 15 (to 19) stamens, free or slightly adnate basally, filaments unequal, 0.7-1.8 mm long, anthers linear, 0.9-2 mm long, with triangular apiculum to 0.3 mm long; gynoecium narrowly conical, 3.5-4.8 mm long, 3-carpellate, each locule with 16 to 26 ovules, stigmatic lobes erect. Carpellate flowers with 15 to 21 staminodes, free or adnate basally, oblanceolate, 0.9-1.6 mm long; gynoecium narrowly pyriform, 3-4.5 mm long, 3-carpellate, each locule with 22 to 31 ovules, stigmatic lobes flaring. Fruits ovoid to globose, 8-9.4 × 4.7-5.3 mm, black; seeds 13 to 26 per locule, 0.7-1 mm long, dark red.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia, St. Vincent!, Grenada!.

COMMON NAMES: Bois petite feuille, mountain parrot, pigeonberry, wash-'way gunstock, graine bleue des hauts, graine bleue-montagne, bois anoli, bois-zanoli, bois-savane, bois-montagne.

NOTES: Weitzman considers this species endemic to the Lesser Antilles despite reports (each based on a single collection) from Cuba, Jamaica, and Trinidad. She considers these reports as questionable, with which we agree.

In previous treatments of *Freziera*, *F. undulata* has been divided into segregate taxa. *Freziera elegans* (or *F. undulata* var. *elegans*) was distinguished on the basis of its smaller leaf size. Most of these specimens are from plants that grow at higher elevations, and intermediates are known. This strongly suggests that this difference is environmentally rather than genetically determined.

Freziera hirsuta (or *F. undulata* var. *hirsuta*) is distinguished by the more densely pubescent twigs. Most of these specimens occur on St. Vincent and Martinique at mid-elevations. Although the material from St. Vincent is exclusively pubescent, specimens from Martinique vary continuously from nearly glabrous to pubescent, again suggesting that this distinction is not worthy of recognition.

In his original description of *Eroteum undulatum*, Swartz did not cite any specimens, mentioning only that he examined material, all presumably in the Banks herbarium (as indicated by the * after the description), from St. Kitts, Montserrat, and Guadeloupe. Later, in Fl. Ind. Occid. **2:** 974. 1800, he cited *Masson s.n.* from St. Kitts, *Ryan s.n.* from Montserrat, *Ponthieu s.n.* and *Fahlberg s.n.* from Guadeloupe, and *Anderson s.n.* from St. Vincent. From one of these specimens a lectotype must be chosen. Howard & Howard (1982) indicated that the *Masson* specimen at the British Museum was the "true holotype." This was meant not in the usual sense of the word, but to distinguish the specimen at BM from material at Stockholm (S) that was labelled "holotypus" and "isotypus," which cannot be true since Swartz did not have material in his possession (Howard, pers. comm.). As it so happens, Weitzman intends to select as the lectotype of *Eroteum undulatum* the *Masson* specimen at BM.

TERNSTROEMIA Mutis ex L. f.

Ternstroemia Mutis ex L. f., Suppl. Pl. 39, 264. 1782, nom. cons.

Syn.: *Mokof* Adanson, Fam. Pl. **2:** 501. 1763, nom. rejic. (Type: Not designated.)
Taonabo Aublet, Hist. Pl. Guiane **1:** 569. 1775, nom. rejic. (Type: *Taonabo dentata* Aublet.)

Trees or shrubs, glabrous throughout. Leaves spirally arranged, often congested or verticillate at ends of branches, petiolate; blades entire, rarely crenate or dentate, usually coriaceous. Flowers solitary, bisexual, pedunculate; bracteoles 2 (rarely 4), opposite, borne just below calyx; sepals unequal, the outer two usually glandular-denticulate, at least when young, eciliate; petals free or connate to middle; stamens numerous, 2- to 4-seriate, rarely uniseriate, filaments connate, the exterior series adnate to petals, anthers usually longer than filaments; gynoecium 2- or 3-locular, rarely unilocular or 4- to 6-locular via false partitions, ovules 2 to 20 per locule, rarely solitary, pendulous from apex of locule, style solitary, rarely 2- or 3-parted, stigmas lobate or punctiform. Fruit an indehiscent, leathery berry, often crowned by persistent style; seeds few per locule, testa smooth, papillate.

TYPE: *Ternstroemia meridionalis* Mutis ex L. f.

A genus of ca. 100 species, principally of the American and Asian tropics; a few species found in Africa. For additional information see I. Urban, Bot. Jahrb. Syst. **21:** 521-544. 1896; and C. E. Kobuski, J. Arnold Arbor. **23:** 298-343, 464-478. 1942, and loc. cit. **24:** 60-76. 1943.

KEY TO THE SPECIES

1. Flowers with stamens uniseriate; ovary 2-locular or falsely 4-locular, 1- or 2-ovulate . . . . *T. oligostemon*
1. Flowers with stamens 2- to 4-seriate; ovary 2- or 3-locular, 2- to multi-ovulate.
    2. Peduncles to 2 cm long; locules 3, 2-ovulate; style 2-3 mm long; stigma 3-parted, evolute . . . . *T. elliptica*
    2. Peduncles 2-6 cm long; locules 2, 5- to 20-ovulate; style 6-9 mm long; stigma entire, non-evolute . . . . *T. peduncularis*

Ternstroemia elliptica Sw., Prodr. 81. 1788; Fl. Ind. Occid. **2:** 929. 1800.
FIGURE 120.

Syntypes: Montserrat, "monte sulphuris," *Ryan s.n.* (BM, photo at A!); Guadeloupe, La Soufrière, *de Ponthieu s.n.* (BM); St. Vincent, *Anderson s.n.* (BM).
Syn.: *Amphania integrifolia* Sol. ex DC., Mém. Soc. Phys. Genève **1:** 410. 1822, in syn.
Mokofua elliptica (Sw.) Kuntze, Revis. Gen. Pl. **1:** 63. 1891.

Shrub or small tree 1.5-5(-10) m tall (usually smaller and shrubby at higher elevations, often in windswept situations). Leaves with petioles 5-15 mm long; blades narrowly obovate to obovate-elliptic, 3.2-8.5 × 1.8-4.5 cm, base attenuate, apex obtuse or rounded, occasionally abruptly acute to very short-acuminate, margin entire, slightly revolute, principal secondary veins ca. 7, obscure. Flowers with peduncles 0.7-2 cm long; bracteoles 2, oblong-ovate, 2-3 mm long, commonly glandular-denticulate; sepals oblong-ovate to orbiculate, markedly dissimilar, the outer two 3-6 mm long, glandular-denticulate, the inner three 5-7 mm long, eglandular; petals obovate, 7-10 mm long, margin often erose, white or yellowish white; stamens numerous, 2- to 4-seriate, unequal, the inner filaments 1-1.5 mm long, the outer filaments 2-3 mm long, anthers linear, 2-2.25 mm long, connective not prolonged or barely so; ovary subglobose-conical, attenuate to the terete style, 3-locular, each locule bi-ovulate, style 2-3 mm long, stigma obscurely 3-lobed, evolute. Fruits ovoid-subglobose, 10-12 mm long, style persistent; seeds ca. 7 mm long.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent.

COMMON NAMES: Bois vert, bois rouge vert, merisier.

Ternstroemia oligostemon Krug & Urban *in* Urban, Bot. Jahrb. Syst. **21:** 534. 1896.

Syntypes: Guadeloupe, *Duchassaing s.n.* & *L'Herminier s.n.*; Martinique, *Duss 171* (all at B, presumably destroyed).

Syn.: *Ternstroemia proctoriana* Kobuski, J. Arnold Arbor. **44:** 434. 1963. (Type: St. Lucia, Forestière District, ca. 1 mile due southeast of Trois Pitons, 9 June 1958, *Proctor 18229* (holotype, A!; isotype, IJ).)

Large tree 25-30 m tall. Leaves with petioles 7-15 mm long; blades narrowly obovate to obovate-elliptic, (3.2-)5.5-14 × 2.8-5.3 cm, base attenuate, apex rounded to obtuse or abruptly short-acuminate, margin entire, slightly revolute, principal secondary veins 10 to 15 pairs, relatively conspicuous on both surfaces. Flowers with peduncles ca. 1-2.7 cm long; bracteoles 2, oblong-ovate, 1.5-3 mm long, dorsally carinate or not, rarely glandular-denticulate; sepals subequal, 5-6.5 mm long, margin eglandular and often erose, or rarely glandular-denticulate (obscurely so); petals ovate, 7-8.5 mm long, yellow or yellowish white; stamens 15 to 20, uniseriate, filaments unequal, 1-2 mm long, anthers linear, 2-3.5 mm long, connective subulate, prolonged beyond thecae 1-2 mm; ovary subglobose-conical, attenuate to the terete style, 2- or falsely 4-locular, each locule 1- or 2-ovulate, style 3-4 mm long, stigma entire, non-evolute. Fruits not seen, but reportedly globose with persistent style, 12-20 mm in diameter.

GENERAL DISTRIBUTION: Lesser Antilles, Trinidad, and Tobago.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Martinique (?), St. Lucia!.

COMMON NAMES: Merise, bois vert.

NOTES: Holosyntype material of this species has all been presumably destroyed. I have seen the Duss collection from Martinique, which, at least for the collections in American herbaria, is *T. elliptica* (see Kobuski, J. Arnold Arbor. **23:** 328. 1942 and **24:** 65. 1943 for additional comments on this collection). Kobuski (loc. cit.) doubted that this species actually grows on Guadeloupe or Martinique and there are no recent collections from these islands to dispute his claim.

In his paper, posthumously published, Kobuski described *T. proctoriana* on the basis of a single collection from St. Lucia. I have examined the holotype (and the accompanying description) and it agrees well with material from Tobago that he identified as *T. oligostemon*, with a second collection from St. Lucia (*Beard 499*, A!) that he apparently did not see, and the extensive description of *T. oligostemon* provided by Krug and Urban. If one compares the two descriptions the only appreciable differences are the size of the petals and the number of locules. I have remeasured the available material from the holotype of *T. proctoriana* and the petals are no longer than 8.5 mm (not 9-10 as reported by Kobuski), which is in better agreement with that of the description of *T. oligostemon* (7 mm long). The number of locules is more problematic. Kobuski cites *T. proctoriana* as having 3 locules with false partitions toward the top of the ovary leading to 5 or 6 locules. The material I examined clearly has 2 locules with false partitions creating the appearance of 3 or 4 locules, which is more in accord with the description of *T. oligostemon*. Although this matter needs to be investigated further, preferably with mature fruits, it appears as though this species is basically bilocular with false partitions creating the appearance of 3 or 4(to 6?) locules.

Ternstroemia peduncularis DC., Mém. Soc. Phys. Genève **1:** 409. 1822.

Type: Not designated.

Syn.: *Ternstroemia meridionalis* Sw., Prodr. 81. 1788, non Mutis ex L. f. (1782).
Ternstroemia obovalis A. Rich. *in* Sagra, Hist. Phys. Cuba, Bot. Pl. Vasc. 221, *t. 25.* [1841] = Hist. Fis. Cuba, Bot., tome **10:** 89, *t. 25.* 1845. (Type: Cuba, Vuelta de Abajo, *Valenzuela s.n.* (probably at P).)
Mokofua obovalis (A. Rich.) Kuntze, Revis. Gen. Pl. **1:** 63. 1891.
Mokofua peduncularis (DC.) Kuntze, loc. cit.
Ternstroemia peduncularis DC. var. *stenophylla* Krug & Urban *in* Urban, Bot. Jahrb. Syst. **21:** 526. 1896. (Syntypes: Guadeloupe, *L'Herminier s.n.*; Marie Galante, *Duss 3651*; Dominica, *Duss 1825*; St. Lucia, *Ramage s.n.*)
Taonabo peduncularis (DC.) Britton, Brooklyn Bot. Gard. Mem. **1:** 70. 1918.
Ternstroemia santaluciae Kobuski, J. Arnold Arbor. **44:** 435. 1963. (Type: St. Lucia, vicinity of Linnis Point, south of Dennery, 17 May 1958, *Proctor 18041* (holotype, A!; isotype, IJ).)

Shrub or tree 2-10 m tall. Leaves with petioles 2-6 mm long; blades oblanceolate to obovate or obovate-elliptic, 2-7.1 × 0.8-3.2, base attenuate, apex rounded or obtuse, margin entire, slightly revolute, principal secondary veins 4 to 7 pairs, obscure. Flowers with peduncles 1.8-6 cm long; bracteoles 2, triangular-ovate to suborbiculate, 2-4 mm long, dorsally carinate, often apiculate, margin commonly glandular-denticulate; sepals dissimilar, oblong-ovate to orbiculate, apex commonly apiculate, the outer two 6-10 mm long, margin usually glandular-denticulate, the inner three (5-)8-13 mm long, margin entire, eglandular; petals oblong to obovate, connate basally to ca. 1/2 their length, 6-10 mm long, margin erose, white without, rose-red within; stamens numerous, 2- to 4-seriate, filaments ca. 1-1.5 mm long, anthers linear, 3-3.5 mm long, connective subulate, prolonged beyond thecae 1.5-2 mm; ovary depressed-ovoid, attenuate to the terete style, 2-locular, each locule 5- to 20-ovulate, style 6-9 mm long, stigma entire, non-evolute. Fruits depressed-ovoid to subglobose, 10-15 mm in diameter, style persistent (at least in part); seeds obovoid, ca. 6-7 mm long, red.

GENERAL DISTRIBUTION: Greater and Lesser Antilles, excluding Jamaica.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Antigua, St. Eustatius!, St. Kitts, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!, Dominica!, Martinique!, St. Lucia!.

COMMON NAMES: Bois vert, cacao-montagne, cacao de grande terre.

CLUSIACEAE

CLUSIACEAE Lindley, Intr. Nat. Syst. Bot. ed. **2:** 74. 1836.

Trees or shrubs, occasionally epiphytic when young (*Clusia*), often with stilt roots or adventitious roots from branches, mostly with orange or yellow latex. Leaves usually opposite, petiolate; blades simple, entire, leathery, often densely pinnately veined and with conspicuously reticulate tertiary venation, commonly punctate with translucent glands as dots or short to long, wavy to straight lines; exstipulate. Inflorescences terminal or axillary cymes, fascicles, or racemes, flowers rarely solitary or borne below leaf-bearing nodes. Flowers regular, bisexual, or plants polygamous or dioecious; sepals (2 to)4 or 5, decussate, valvate and fused, or imbricate; petals free, 4 or 5(to 9), imbricate or contorted; stamens numerous, free or fascicled or completely united at base, rarely forming a tube, anthers globose or elongate, longitudinally dehiscent, connective sometimes extended or enlarged; staminodes absent, or free, often reduced and united into thick cupular unit; ovary superior, 1- to several-locular, ovules 1 to many, styles free, fused, or wanting, stigma globose, lobed or free and elongate. Fruit a berry, drupe, or septifragal or septicidal capsule; seeds small to very large, sometimes arillate or with a sarcotesta, or comose, occasionally with rugose or reticulated seed coat, parts often colorful.

TYPE: *Clusia* L.

A tropical family of 40 genera and about 1500 species. The name Clusiaceae is an alternate name for the Guttiferae.

Cultivated Taxa

Pentadesma butyracea Sabine of Africa has been collected from cultivation in Dominica.

Vismia ferruginea Kunth was once cultivated in the St. Vincent Botanic Garden.

Key to the Genera

1. Inflorescences terminal; trunks with basal prop or stilt roots and branches often with abundant adventitious roots.
    2. Flowers red; filaments united in a tube surrounding pistil; fruits indehiscent; plants of swampy areas . . . . *Symphonia*
    2. Flowers white or yellow; stamens free or fascicled; fruits dehiscent; plants of other than swampy areas.
        3. Ovules numerous in each locule . . . . *Clusia*
        3. Ovules solitary in each locule.
            4. Petioles without basal, adaxial protuberance; filaments short; fruits globose, to 2.5 cm dia. . . . . *Chrysochlamys*
            4. Petioles with conspicuous basal, adaxial protuberance; filaments linear-subulate; fruits oblong, to 6 cm long, bright red inside . . . . *Tovomita*
1. Inflorescences axillary or clustered at leafless nodes.
    5. Inflorescences with well-developed axis.
        6. Leaves with lateral veins ca. 1 cm apart; fruit a siliqueform capsule, longitudinally dehiscent with numerous, fringed seeds; inflorescence axis to 12 cm long . . . . *Marila*
        6. Leaves with lateral veins ca. 1 mm apart; fruit a globose, 1-seeded "drupe," indehiscent with woody testa; inflorescence axis 3-5 cm long . . . . *Calophyllum*
    5. Inflorescences lacking an axis, with fasciculate or clustered, pedicellate flowers.
        7. Petioles without basal, adaxial protuberance; flowers few; calyx of united sepals, rupturing irregularly; fruits 10-15 cm dia., surface rough . . . . *Mammea*
        7. Petioles with conspicuous basal, adaxial protuberance; flowers several from perennating base; calyx of 2 distinct sepals; fruits to 6 cm dia., surface smooth . . . . *Garcinia*

CALOPHYLLUM L.

Calophyllum L., Sp. Pl. **1:** 513. 1753.

Trees without stilt roots, latex and wood yellowish. Leaves opposite, entire, leathery, shiny, with numerous pinnate and parallel veins alternating with latex canals, without translucent dots, soon glabrous. Inflorescences axillary, short racemes or clusters; axis 3-5 cm long. Flowers unisexual or bisexual (plants polygamous); sepals 2 to 4; petals 4 or wanting; stamens numerous, free or slightly united at base, filaments filiform, anthers oblong; ovary 1-celled, 1-ovulate, style short, stigma capitate. Fruit a globose drupe; seed one, testa hard, woody, cotyledons very large.

LECTOTYPE: *Calophyllum calaba* L. (see N. L. Britton, Fl. Bermuda 246. 1918).

A genus of over 150 species, mostly from tropical Asia.

Calophyllum calaba L., Sp. Pl. **1:** 514. 1753. FIGURE 121.

Lectotype: Plum., Nov. Pl. Amer. *t. 18* "Calaba." 1703.

Syn.: *Calophyllum antillanum* Britton, Bot. Porto Rico **5:** 584. 1924. (Type: Jacq., Select. Stirp. Amer. Hist. *t. 165.* 1763.)
Calophyllum jacquinii Fawcett & Rendle, Fl. Jamaica **5:** 200. 1926, nom. illegit. (same type as *Calophyllum antillanum*).
Calophyllum brasiliense Cambess. var. *antillanum* (Britton) Standley, Trop. Woods **30:** 7. 1932.

Tree to 25 m tall. Leaves with petioles 9 to 13 mm long, without basal, adaxial protuberance; blades elliptic or oblong-elliptic, 7-15 × 3.5-7 cm, base obtuse or cuneate, apex rounded to slightly emarginate, margin sometimes undulate, tertiary venation inconspicuous, glabrous. Flowers on pedicels 4-10 mm long; sepals rounded, decussate, outer pair 2-3 mm long, inner pair 5-7 mm long; petals 4 or wanting, oblong, to 7 × 5 mm, white; stamens or staminodes numerous; pistil globose, style 1 mm long. Fruits globose, 2-2.5 cm in diameter, green or greenish yellow; seed globose, 13 mm in diameter, cotyledons immense.

GENERAL DISTRIBUTION: Greater Antilles, St. Croix, Trinidad, Tobago.

DISTRIBUTION IN LESSER ANTILLES: Barbuda, Antigua!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Galba, bois de charromage.

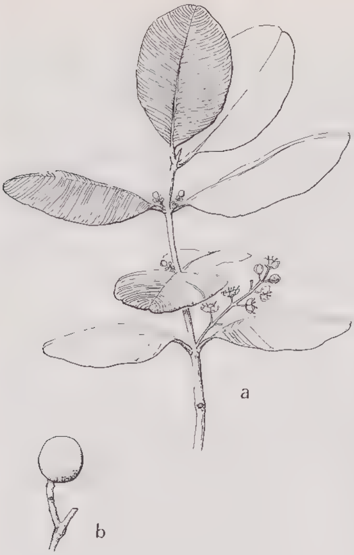
NOTES: Galba is commonly used as a windbreak in the Lesser Antilles and/or planted as a living fence and roadside tree.

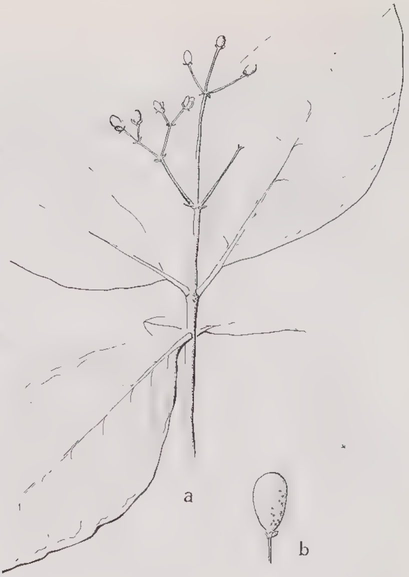
Recent authors have disagreed on the correct typification of the genus and the specific name to be used in the Antilles. Howard (J. Arnold Arbor. **43:** 389-399. 1962) accepted the Jacquin lectotypification of the Linnean name. Plumier's plate stands as the correct lectotype, and his use of "calaba" for this Antillean plant was retained by Linnaeus. Stevens (*in* Manilal, Botany and History of Hortus Malabaricus, pp. 168-176. 1980) disagreed with these conclusions and accepted Linnaeus's *C. calaba* for the Sri Lanka element. Lourteig and Fosberg (Phytologia **57:** 153-155. 1985) accepted the earlier typification on the Plumier plate applying *Calophyllum calaba* L. to the Antillean plants.

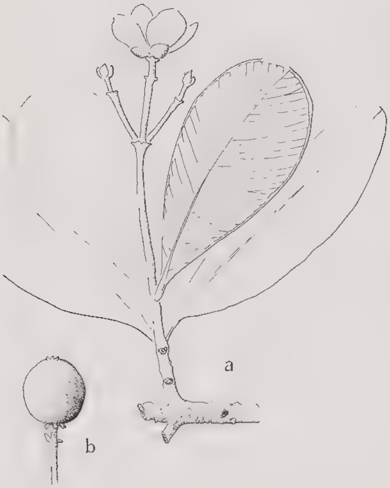
CHRYSOCHLAMYS Poeppig

Chrysochlamys Poeppig *in* Poeppig & Endl., Nov. Gen. Sp. Pl. **3**(1): 13. 1840.

Trees, commonly stilt-rooted, latex not recorded; terminal buds without scales. Leaves with petioles lacking basal, adaxial protuberance; blades entire,







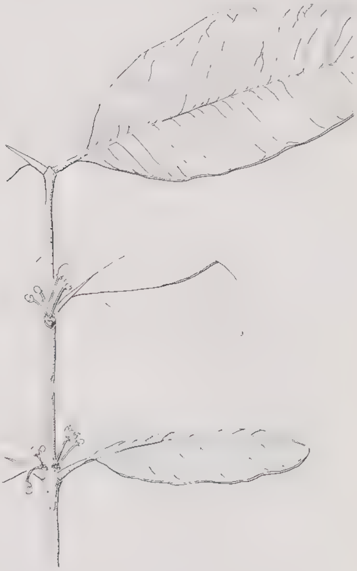


FIGURE 121 (upper left). *Calophyllum calaba*: a, flowering branch, × 0.3; b, fruit, × 0.3. FIGURE 122 (upper right). *Chrysochlamys caribaea*: a, flowering branch, × 0.3; b, fruit, × 0.3. FIGURE 123 (lower left). *Clusia plukenetii*: a, flowering branch, × 0.3; b, fruit, × 0.3. FIGURE 124 (lower right). *Garcinia humilis*, × 0.3.

leathery, shiny, with black, meandering, wavy lines (=canals). Inflorescences terminal, diffusely paniculate. Flowers unisexual or bisexual (plants polygamous or dioecious), white or yellow; sepals 4 or 5, the outer smaller; petals 4 or 5(to 9); stamens numerous, all free and fertile or filaments united, or outer free and fertile and inner united, anthers small, elongate; ovary 4- to 6-celled, ovules 1 in each locule, style short, stigma thick, lobed. Fruit a capsule, globose or pear-shaped, berrylike, septifragally dehiscent with 5 valves; seeds arillate, cotyledons minute.

TYPE: *Chrysochlamys multiflora* Poeppig & Endl.

Chrysochlamys caribaea Urban, Symb. Antill. **5:** 434. 1908. FIGURE 122.

Type: St. Lucia, *Ramage s.n.*

Tree to 10 m tall. Leaves with petioles 1-3.5 cm long; blades obovate, ovate, or elliptic, 6-27 × 4.5-9 cm, base rounded, obtuse, or acute, apex rounded or acute, lateral nerves 7 to 9, arcuate. Inflorescences to 30 cm long; peduncles 9-15 cm long. Flowers on pedicels 15-20 cm long; sepals 5, red, the outer short and bractlike, the inner orbicular with scariose, erose margins; petals 5, broadly oblong, 5 × 5 mm, yellow or white; staminodes sub-biseriate, united in cupular mass, anthers quadrate; ovary globose. Fruits oblong, 2.5 cm long, 1.5 cm in diameter, gray-brown.

GENERAL DISTRIBUTION: Known only from St. Lucia.

COMMON NAMES: Bois mangle, palatuvier blanc.

NOTE: Represented by few and incomplete collections.

CLUSIA L.

Clusia L., Sp. Pl. **1:** 509. 1753.

Trees or shrubs, epiphytic or lithophytic, with numerous adventitious, basal roots and adventitious roots free or reaching the ground from lateral branches; bark thick, latex white or yellow; terminal buds without scales. Leaves with petioles with basal, adaxial protruberance; blades entire, leathery or fleshy, and coriaceous, with latex canals and many, closely associated, parallel pinnate veins, drying tan or greenish black. Inflorescences terminal at ends of branches, cymes or corymbs, or flowers solitary. Flowers unisexual or bisexual (plants polygamous or dioecious), large or small; bracts 2 to 6, decussate in pairs; sepals 4 to 6, usually rounded and overlapping; petals 4 to 9, imbricate and overlapping when expanded, white turning red or yellowish; staminate flowers, where known, with numerous stamens usually partially united, anthers elongate, pistillode present or wanting; pistillate flowers with staminodes few or many, occasionally forming mucilaginous cupule, ovary 4- to 12-locular, ovules usually many in each cell, stigmas radiating, thick and fleshy, sessile or on short, thick styles. Fruit a capsule, leathery, resinous and fleshy, usually septifragally dehiscent with 4 to 12 valves; seeds numerous with fleshy, brightly colored aril, cotyledons small.

LECTOTYPE: *Clusia major* L.; vide N. L. Britton & C. F. Millspaugh, Bahama Fl. 281. 1920.

A difficult genus of over 150 species extending throughout the Antilles, Central America, and tropical South America. The species are poorly known and defined and inadequately collected. Two of the Lesser Antillean species are known only from staminate specimens and are presumed to be apomictic (Maguire, Taxon **25:** 241-244. 1976). Howard (J. Arnold Arbor. **43:** 389-397. 1962) discussed the difficult typification of several species pertinent to this Flora.

KEY TO THE SPECIES

1. Inflorescence a compound cyme; peduncles 4-13 cm long.
    2. Inflorescences compact, pedicels wanting; leaves subsessile or on short, stout petioles; fruits 1-2 cm dia., dull green or yellowish . . . . *C. mangle*
    2. Inflorescence diffuse, pedicels exceeding 1 cm; leaves on thin petioles; fruits 2.5 cm dia. or larger, dark red and shiny . . . . *C. plukenetii*
1. Inflorescence of a single flower or rarely 3 in a short-peduncled cyme; peduncles 0.2-3 cm long.
    3. Leaves < 4 cm wide, blades bluntly acute at apex; fruits green or yellow, globose, 1-1.5 cm dia. . . . . *C. minor*
    3. Leaves > 4 cm wide, blades rounded, truncate or emarginate at apex; fruits tan to red-purple, more than 3 cm dia.
        4. Flowers 8-10 cm dia.; fruits globose, 5-8 cm dia., yellow, dehiscent, the leathery valves 8 to 12; leaves drying pale tan and without conspicuous dark lines; coastal plant . . . . *C. rosea*
        4. Flowers to 5 cm dia.; fruits ellipsoidal, 3-4 mm dia., 4-6 cm long, dark red-purple and seemingly indehiscent; leaves drying dark green with abundant wavy, black, resinous lines . . . . *C. major*

Clusia major L., Sp. Pl. **1:** 509. 1753.

Lectotype: Plum. Mss. #6, Botanicum Americanum *t. VI*; reproduced by Howard (1962) as *fig. 1.*

Syn.: *Clusia alba* Jacq., Enum. Syst. Pl. 34. 1760; Select. Stirp. Amer. Hist. 271, *t. 166.* 1763. (Type: Plum., Pl. Amer. *t. 87, fig. 1.* 1756.)

Epiphytic or freestanding trees to 20 m tall, often with extensive aerial roots, latex white. Leaves with petioles 1-2 cm long; blades obovate to obovate-elliptic, 9-18 × 4.5-10 cm, base narrowed and decurrent on petiole, apex obtuse to rounded or bluntly acute, thinly coriaceous, veins numerous, indistinct, drying dark green with abundant wavy, black, resinous lines. Inflorescences single-flowered, rarely 3-flowered, cymes; peduncles 1-3 cm long; bracts ovate, paired, to 5 mm long. Flowers to 5 cm in diameter; pedicels 1 cm long; sepals of 2 dissimilar pairs, the outer bractlike, the inner orbicular to 1 cm long; petals 4, rarely 5 or 6, broadly oblong, 1-2 cm long and wide, white or yellowish; stamens of staminate flowers numerous, free, in several rows, pistillate rudiment lacking, staminodes of pistillate flowers in 1, rarely

2, rows, free; pistil globose, stigmas 5, sessile. Fruits ellipsoidal, 4-6 cm long, 3-4 cm in diameter, dark red-purple, shiny, possibly indehiscent.

General distribution: Endemic to the Lesser Antilles.

Distribution in Lesser Antilles: Antigua!, St. Eustatius!, St. Kitts!, Nevis!, Montserrat, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

Common names: Mountain cherry, wild man support, Aralie, trick leaf, l'aglie, figuier maudit, figuier marron, abricot bâtard, aralie grandes feuilles, alawi, monkey goblet.

Notes: Only one clearly staminate specimen has been seen, and the stamens of clearly pistillate plants appear to be sterile. No dehiscent fruits have been seen in the field or in numerous herbarium specimens.

Clusia mangle Rich. ex Planchon & Triana, Ann. Sci. Nat. Bot. sér. 4, **13:** 369. 1860.

Type: Guadeloupe, *Richard s.n.* (P).
Syn.: *Clusia venosa* auct., non Jacq. (1760).

Shrub or small tree forming dense, nearly impenetrable thickets at higher elevations, with many adventitious roots from branches, latex white. Leaves with petioles nearly absent, to 1 cm long, stout, broadly winged at base; blades obovate or obtriangular, 10-20 × 8-17 cm, margin flat, veins numerous, conspicuous when dry, thickly coriaceous. Inflorescences compactly corymbose; peduncles stout, 5-8 cm long; bracts broadly ovate-triangular, to 1 cm long, thick and strongly keeled. Flowers with pedicels short or wanting; calyx of 2 pairs of decussate, dissimilar sepals to 5 mm in diameter; petals 5, oblong, yellow; staminate flowers with 2 rows of free stamens, pistillate rudiment minute; pistillate flowers with 8 staminodes, filaments free or united, broad at base, without anthers, pistil globose, stigmas 5, sessile, broad and fleshy. Fruits globose, 1-2 cm in diameter, dehiscent into 4 leathery valves, dull green or yellowish.

General distribution: Endemic to the Lesser Antilles.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!.

Common names: Mangle, mangle-montagne, mangle rouge, paletuvier-montagne, arcades, kaklin.

Note: Mature flowering specimens have not been seen.

Clusia minor L., Sp. Pl. **1:** 510. 1753.

Lectotype: Plum., Icon. ined. *t. 88*, as *Clusia* flore roseo minor, fructo e viridi rubro; reproduced by Howard (1962) as *fig. 2*.

Small tree, freestanding or scrambling, to 6 m tall, latex white. Leaves with petioles 5-11 mm long; blades obovate, 5-7 × 2.5-4 cm, base cuneate and decurrent on petiole, apex acutely rounded, margin flat, veins numerous, inconspicuous, thinly coriaceous. Inflorescences cymose with 1 to 3 flowers; peduncle 2-6 mm long; bracts 2, small. Flowers with calyx of 2 pairs of decussate, similar, orbicular sepals; petals 5, obovate-orbicular, to 1.5 cm long; fertile stamens not known, staminodes united in compact ring; pistil ovoid, stigmas sessile, 6 or 7. Fruits globose, 1-1.5 cm in diameter, dehiscent into 6 leathery valves, green or yellow.

GENERAL DISTRIBUTION: Cuba, Hispaniola, Puerto Rico, Virgin Islands, Central America, possibly northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!, the Grenadines!.

NOTE: Maguire has concluded that this species is also apomictic; it is known only from pistillate flowering and fruiting specimens.

Clusia plukenetii Urban, Symb. Antill. **5:** 432. 1908. FIGURE 123.

Type: Not selected.
Syn.: *Clusia rosea* Duss, Fl. Phan. Antill. Franç. 99. 1897, pro parte.
Clusia flava sensu Maycock, Fl. Barbad. 398. 1830, non Jacq. (1760).

Dioecious tree to 10 m tall, with basal adventitious roots and long adventitious roots from branches, latex white. Leaves with petioles 5-20 mm long, relatively thin; blades obovate, 7-15 × 4-9 cm, base narrowed and decurrent on petiole, apex obtuse to subtruncate, lateral veins numerous, ascending, inconspicuous. Inflorescences 1-, 2-, or 3-corymbose; peduncles 4-13 cm long; bracts 2. Flowers on pedicels 1-2 cm long; sepals in 2 decussate pairs, broadly orbicular; petals 6 to 9, broadly obovate, 2 × 1.2 cm, white with bright red base or streaks to pink becoming all red; stamens of staminate flowers numerous in several rows, free, pistillate rudiment lacking; pistillate flowers with fewer free staminodes, in 1 or 2 rows, ovary globose, styles 3, distinct, to 3 mm long, stigmas 6 to 8, fleshy. Fruits subglobose to spheroidal, 2.5 cm in diameter, dehiscent into 6 valves, cherry red to purple-red and shiny; seeds with reddish aril.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Martinique (*Duss 1829* ex Urban), St. Lucia!, Barbados!.

COMMON NAMES: Aralie, awali.

NOTES: This species has the most copious development of long, adventitious roots from the branches. At the Hackleton Cliffs on Barbados, some roots extend 30 m downward from the plants on the cliff face.

Urban cited the figure by Plukenet (Phytographia *t. 157, fig. 2.* 1692) as well as specimens from Martinique (*Duss 1829*, n.v.), St. Lucia (*Ramage s.n.*, n.v.), and Barbados (*Eggers 7333*, n.v., and *Waby 80*!). One of the latter two should be selected as a lectotype.

Clusia rosea Jacq., Enum. Syst. Pl. 34. 1760.

Type: Bahamas, Catesby, Nat. Hist. Carolina **2:** *t. 99.* 1743; (typotype, BM).
Syn.: *Clusia retusa* Poir. *in* Lam., Encycl. **5:** 183. 1804. (Type: ?Domingo, collector unknown (P-LA; IDC 6207. 74: III. 5, photo!) or Tabl. Encycl. *pl. 852.* 1799.)

Tree to 10 m tall, freestanding, epiphytic or lithophytic, latex yellow. Leaves with petioles 1-2 cm long; blades obovate, 9-23 × 6.4-15 cm, narrowed below middle to ultimately obtuse base, apex rounded, truncate, or emarginate, veins numerous, slightly prominent, thick coriaceous, drying pale tan and without conspicuous dark lines. Flowers 8-10 cm in diameter, solitary or in cymose, 3-flowered clusters; peduncles 2 mm long; bracts 2; sepals in 2 dissimilar pairs, to 2 cm broad; petals 6 to 8, obovate, 3-4 cm long, white turning pink; staminate flowers unknown; pistillate flowers with staminodes united forming a resinous cupule, pistil globose, stigmas 6 to 9. Fruits globose, 5-8 cm in diameter, dehiscent to 12 leathery valves, yellow; seeds with red aril.

GENERAL DISTRIBUTION: Bahamas, Greater Antilles, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!.

COMMON NAME: Pitch apple.

NOTES: All specimens seen are functionally pistillate, but since they are apomictic, they produce viable seeds. Maguire (1976) reports this species to occur inland in Central America, but all specimens so annotated that have been examined are clearly not the same as the coastal *C. rosea* from the Antilles. Records of *C. rosea* from Trinidad and northern South America are also misidentifications.

Poiret cited both an illustration and a specimen when he described this species (both cited above). The ICBN (Voss et al., 1983) recommends that a specimen be given preference over an illustration when lectotypification is required (T.4, b). We defer formal lectotypification to someone who can thoroughly review this situation, especially since we have seen only a photograph of the specimen in the Lamarck herbarium.

GARCINIA L.

Garcinia L., Sp. Pl. **1:** 443. 1753.

Syn.: *Rheedia* L., Sp. Pl. **2:** 1193. 1753. Type: *Rheedia lateriflora* L.

Trees or shrubs, stilt roots lacking, latex yellow; terminal bud without scales (in Caribbean). Leaves with petioles with basal adaxial protuberance; blades with translucent canals and prominent venation, coriaceous. Inflorescences axillary or at leafless nodes, few- to many-flowered cymes or fascicles from perennating base, or flowers solitary. Flowers unisexual or bisexual (plants polygamous); sepals 2, imbricate; petals 4 or 5, imbricate, greenish yellow; staminate flowers with many stamens in fascicles, filaments terete, anthers globose, ovary rudimentary; pistillate flowers with fascicled staminodes, ovary globose, 2- to 5-locular, each locule with 1 ovule, stigma sessile. Fruit a 1- to 4-seeded berry, smooth or verrucose; seeds large, cotyledons minute.

TYPE: *Garcinia mangostana* L.

A genus of 200 species of the tropics, most abundant in Africa and Asia.

CULTIVATED TAXA

Garcinia buchanani Baker, *G. edulis* (Planchon & Triana) Exell, *G. mangostana* L. and *G. morella* (Gaertner) Desr. were once cultivated in the Dominica Botanic Garden.

Garcinia livingstonei T. Anderson is represented by aging plants in the botanic station on Montserrat.

Rheedia portoricensis Urban, with a synonym of *Rheedia acuminata* (Ruíz & Pavón) Planchon & Triana, was reported from St. Vincent and was presumably a plant cultivated in the St. Vincent Botanic Garden. To our knowledge, the appropriate combination in *Garcinia* has not been made.

Garcinia humilis (M. Vahl) C. Adams, Phytologia **20:** 312. 1970.

FIGURE 124.

Basionym: *Mammea humilis* M. Vahl, Eclog. Amer. **2:** 40, *t. 20.* 1798.
Type: Montserrat, *Ryan s.n.* (holotype, C; IDC 2201. 45: III. 2, 4, photo!).
Syn.: *Rheedia lateriflora* L., Sp. Pl. **2:** 1193. 1753, non *Garcinia lateriflora* Blume (1825). (Type: Plum., Nov. Pl. Amer. 45, *t. 18.* 1703.)
  Mammea humilis M. Vahl var. *plumieri* Griseb., Fl. Brit. W. 108. 1859. (Type: Plum., Pl. Amer. *t. 257.* 1760.)
  Mammea humilis M. Vahl var. *vahlii* Griseb., Fl. Brit. W. Indian Is. 108. 1859. (Type: M. Vahl, Eclog. Amer. *t. 20* (exclud. fr.) 1798.)
  Mammea humilis M. Vahl var. *macrophylla* C. Martius ex Duss, Fl. Phan. Antill. Franç. 102. 1897, nom. illegit.

Trees to 10 m tall, latex dull orange. Leaves with petioles 1-2.5 cm long; blades broadly ovate-elliptic to elliptic-oblong, 9-22 × 3-15 cm, base rounded, apex acute, nerves numerous, reticulations prominent. Flowers on pedicels 1-2 cm long; sepals orbicular, 1.5 mm long; petals usually 4, elliptic, two broader than the others, 5-7 × 4-6 mm, white or cream; stamens numerous in staminate flowers, fewer in perfect flowers; ovary globose, 3-4 mm in diameter, 3- or 4-celled, stigmas 3 or 4, flattened. Fruits ellipsoidal, 5 cm broad, smooth, pointed, yellow; seeds 1 to 3, to 3 cm long.

GENERAL DISTRIBUTION: Jamaica, Hispaniola, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, Grenada!.

COMMON NAMES: Bois chica, bois l'onguent, bois mulâtre, abricotier bâtard.

MAMMEA L.

Mammea L., Sp. Pl. **1:** 512. 1753.

Generally large trees without stilt roots; inner bark, latex, and wood yellowish; terminal buds protected by scales. Leaves with petioles lacking basal adaxial protuberances; blades leathery, with latex glands, evenly pinnately veined, with reticulate secondary venation prominent. Flowers solitary or clustered in axils, pedunculate, unisexual or bisexual (plants polygamous); calyx united in bud, splitting irregularly into 2 valvate sepals; petals 4 to 6; stamens numerous, free or united at base, filaments threadlike, anthers erect, oblong, longitudinally dehiscent; ovary 2-celled, each with 2 ovules, style short, stigma peltate, entire or broadly lobed. Fruit a large berry with firm, rough pericarp; seeds 2 to 4, testa woody, rough, reticulate, cotyledons huge.

LECTOTYPE: *Mammea americana* L.; see N. L. Britton & P. Wilson, Bot. Porto Rico **5:** 583. 1924.

A genus of about 50 species, two New World, two African, and the rest in Madagascar and the Indo-Malesian to Pacific tropics.

CULTIVATED SPECIES

Mammea siamensis (Miq.) T. Anderson is currently cultivated in the Botanical Garden, Basse Terre, Guadeloupe.

Mammea americana L., Sp. Pl. **1:** 512. 1753. FIGURE 125.

Type: Not selected.

Trees to 20 m tall. Leaves with petioles stout, 1-1.5 cm long; blades elliptic or elliptic-obovate, 9-25 × 5-11 cm, base cuneate, apex obtuse or rounded, abundantly punctate-dotted, glabrous. Flowers with peduncles to 1 cm long, articulate near base; sepals 10-15 mm long and broad; petals obovate, to 2 × 1.5 cm, white. Fruits globose, 10-15 cm in diameter, apiculate, brown with thick exocarp, mesocarp fleshy and soft when ripe, yellowish; seeds to 7 × 5.5 cm, with reddish brown, fibrous testa.

GENERAL DISTRIBUTION: Greater Antilles, St. Thomas, St. Croix, Trinidad, Mexico, Central America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Antigua, Saba, St. Eustatius, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Vincent!, Grenada!.

COMMON NAMES: Mammee apple, mammee sapote, abricot, abricotier, zabwiko, zapricot.

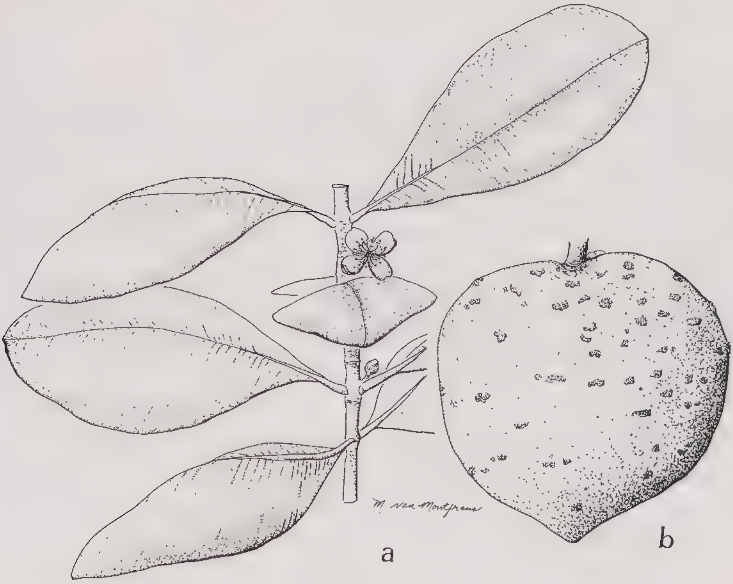


FIGURE 125. *Mammea americana*: a, flowering shoot, × 0.5; b, fruit, × 0.25.

MARILA Sw.

Marila Sw., Prodr. 5, 84. 1788.

Trees, without basal stilt roots, latex clear; terminal bud without scales. Leaves with petioles lacking basal, adaxial protuberances; blades thinly coriaceous, with glands and conspicuous, diverging secondary veins anastomosing at margins, tertiary venation inconspicuous. Inflorescences axillary racemes to 12 cm long. Flowers perfect; sepals 5, quincuncial; petals 5, imbricate or contorted, reflexed; stamens numerous, filaments filiform, free, anthers linear with broad terminal gland; ovary 5-celled with numerous ovules, elongate and tapering to thick style, stigma globose, scarcely lobed. Fruit an elongate, siliqueform capsule, septicidally dehiscent; seeds numerous, elongate, comose at both ends, cotyledons moderate-sized.

TYPE: *Marila racemosa* Sw.

A genus of 15 species of tropical America.

Marila racemosa Sw., Prodr. 84. 1788. FIGURE 126.

Syntypes: Without exact location, *de Ponthieu s.n.*; St. Kitts, *Masson s.n.*; Montserrat, *Ryan s.n.* (all at BM?).

Syn.: *Bonnetia racemosa* (Sw.) Sw., Fl. Ind. Occid. **2:** 965. 1800.

Tree to 10 m tall or commonly a smaller shrub. Leaves with petioles 1.5 cm long; blades oblong-lanceolate to lanceolate, 11-23 × 2-4.5 cm, base rounded or acute, apex acute to acuminate, thin, primary veins prominent, ultimate venation inconspicuous, with translucent dot or lines, stellate-pubescent, becoming glabrous. Inflorescences simple racemes to 10 cm long. Flowers with sepals oblong, 7 × 2 mm, reflexed; petals oblong or linear-oblong, to 9 × 3 mm, spreading or reflexed, greenish white; anthers elongate with large, white gland at apex; stigma capitate. Capsules to 2 cm long, commonly curved, splitting longitudinally along 1 or 2 sutures but not separating at apex, valves recurved; seeds elongate or fusiform, 1-2 mm long, dark brown, fringed or comose at both ends.

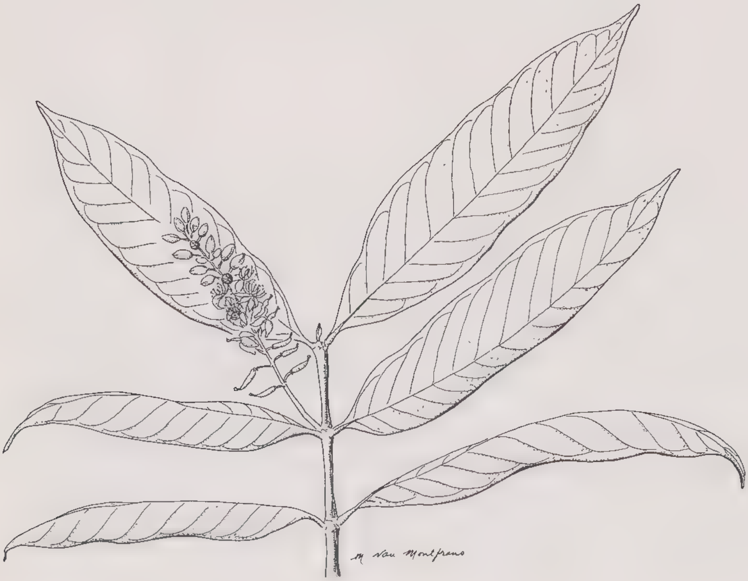


FIGURE 126. *Marila racemosa*, × 0.5.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Cachiman bois, cachiman marron, bois-casse rose, bois-cachiman, bois pois, bwa pwa, bull tongue.

SYMPHONIA L. f.

Symphonia L. f., Suppl. Pl. 49. 1782.

Trees or shrubs with basal stilt roots, sap yellowish; terminal bud with protective scales. Leaves with petioles lacking basal, adaxial protuberance; blades thin-leathery, with numerous pinnately parallel veins extending to marginal vein, without translucent dots or lines. Inflorescences terminal, sessile cymes or umbellate panicles, or rarely flowers solitary at ends of lateral branches. Flowers unisexual or bisexual (plants polygamous), red; sepals 5, quincuncial; petals 5, contorted; cupuliform disk present; filaments united in tube, persistent around ovary, lobed above, each lobe extended above 3 or 4 linear anthers; ovary 5-celled with 1 to 12 ovules in each cell, style elongated, 5-lobed, stigmas minute. Fruits globose or ovoid, baccate, smooth or verrucose; seeds few to solitary, testa thin and veined, with cellulose fibers, cotyledons at most minute.

TYPE: *Symphonia globulifera* L. f.

A genus with one species in tropical America and in Africa, 2 species in Colombia, and a dozen in Madagascar. The species limits are very uncertain.

Symphonia globulifera L. f., Suppl. Pl. 49, 302. 1782. FIGURE 127.

Type: Surinam, *Dalberg s.n.* (possibly LINN 853.1).
Syn.: *Moronobea coccinea* auct., not Aublet (1775).

Tree to 30 m tall but more commonly a small shrub, stilt roots several. Leaves with petioles 3-12 mm long; blades lanceolate, oblanceolate, or oblong-elliptic, 5-12 × 1-5 cm, base cuneate, apex acuminate, thinly coriaceous. Flowers in terminal clusters on short, horizontal branches, brilliant scarlet; sepals rounded, 4-5 mm long and wide; petals 15 × 22 mm, round, concave and commonly lobed on one side; staminal column 10-15 mm high, red, anthers darker or black. Fruits 1.5-3.5 cm long, terminal style persistent; seed solitary, 12-20 mm long.

GENERAL DISTRIBUTION: Jamaica, Hispaniola, Central America, South America, Africa.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, St. Lucia!.

COMMON NAMES: Paletuvier jaune, mangle jaune.

NOTE: Commonly found in swamps or wet areas.

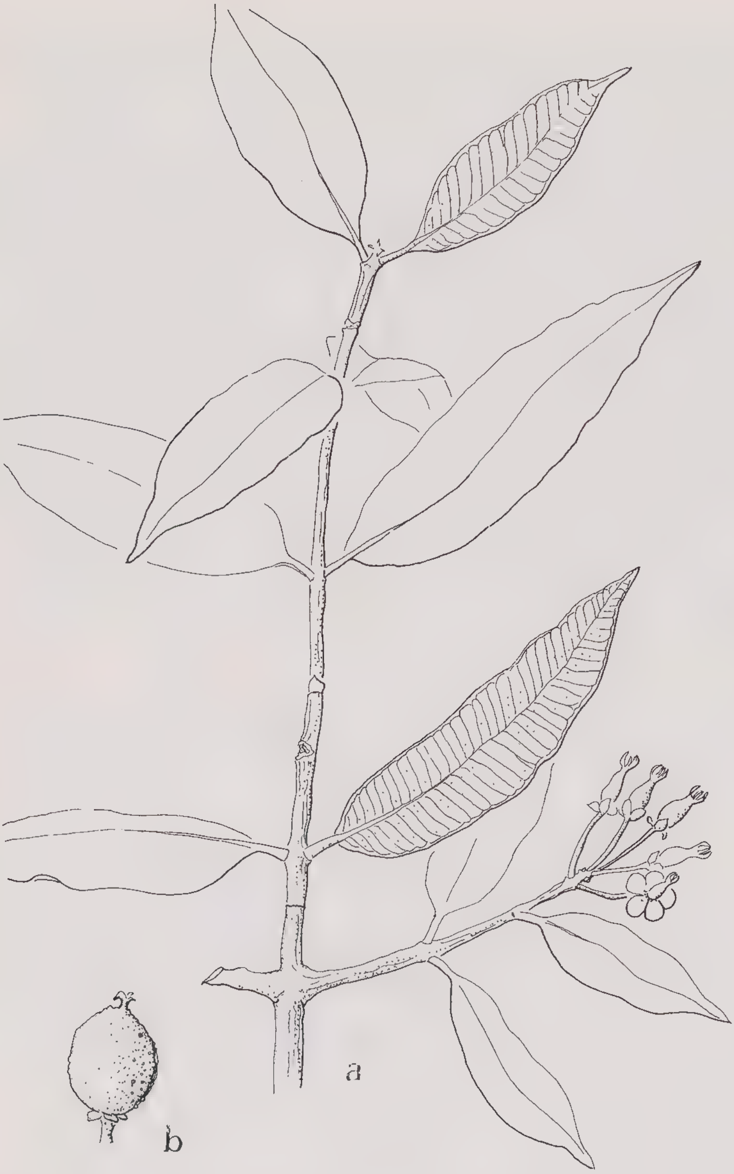


FIGURE 127. *Symphonia globulifera*: a, flowering branch, × 0.6; b, fruit, × 0.6.

TOVOMITA Aublet

Tovomita Aublet, Hist. Pl. Guiane **2:** 956. 1775.

Trees or shrubs, stilt roots present, latex yellow; terminal buds lacking scales. Leaves with petioles with basal flange or adaxial protuberance; blades leathery, with latex canals. Inflorescences terminal and axillary cymes. Flowers unisexual or bisexual (plants dioecious or polygamous), white or yellow; sepals 2 to 4; petals 4 to 10, imbricate to decussate; stamens numerous, filaments free, thickened, anthers erect, continuous with filament; ovary 4- or 5-celled, extended in thick neck, stigmas 4 or 5, broadly oblong, subsessile. Fruits leathery capsules, 4-or 5-celled and valved; seeds solitary in each locule, arillate, seed coat thin, reddish, cotyledons at most minute.

TYPE: *Tovomita guianensis* Aublet.

A genus of 60 species of tropical America.

Tovomita plumieri Griseb., Fl. Brit. W. Indian Is. 106. 1859. FIGURE 128.

Type: Dominica, *Imray s.n.* (lectotype, GOET; isolectotype, K).
Syn.: *Tovomita martinicensis* Vesque, Epharmosis **3:** 20, *pl. 103, 104, 105.* 1892. (Syntypes: *Hahn 992, 1173, 1390.*)

Tree to 10 m tall. Leaves with petioles 2-3 cm long, winged at base or with adaxial protuberance; blades elliptic, 12-28 × 5-13 cm, base cuneate, apex mucronate or acute, nerves ascending and extended at margin. Cymes 3- to 5-flowered. Flowers on pedicels 2.5 cm long, articulate below middle; buds globose; calyx splitting into 2 round sepals; petals 4 or 5, ovate-orbicular, 1 cm in diameter, cream; stamens and staminodes numerous, filaments distinct, subulate. Fruits oblongoid, asymmetrical and curved if less than 5 locules develop seeds, to 6 cm long, 3.5 cm in diameter, valves 4 or 5, recurved, bright red inside; seeds bright red.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Martinique!, St. Lucia!.

COMMON NAMES: Paletuvier rouge, mangle bois, paletuvier grand-bois, mangle blanc, mangle rouge.

TAMARICACEAE

by Allan J. Bornstein

TAMARICACEAE Link, Enum. Hort. Berol. Art. **1:** 291. 1821 ('Tamariscinae').

Shrubs or small trees, primarily halophytic or xerophytic, with slender branches. Leaves alternate, sessile; blades small, subulate or scalelike; exstipulate. Inflorescences terminal spikes or racemes, or the flowers solitary. Flowers regular, bisexual, small; sepals 4 or 5, distinct or occasionally basally connate, imbricate, persistent; petals 4 or 5, alternisepalous, distinct, contorted, persistent to deciduous; stamens as many as or often twice as

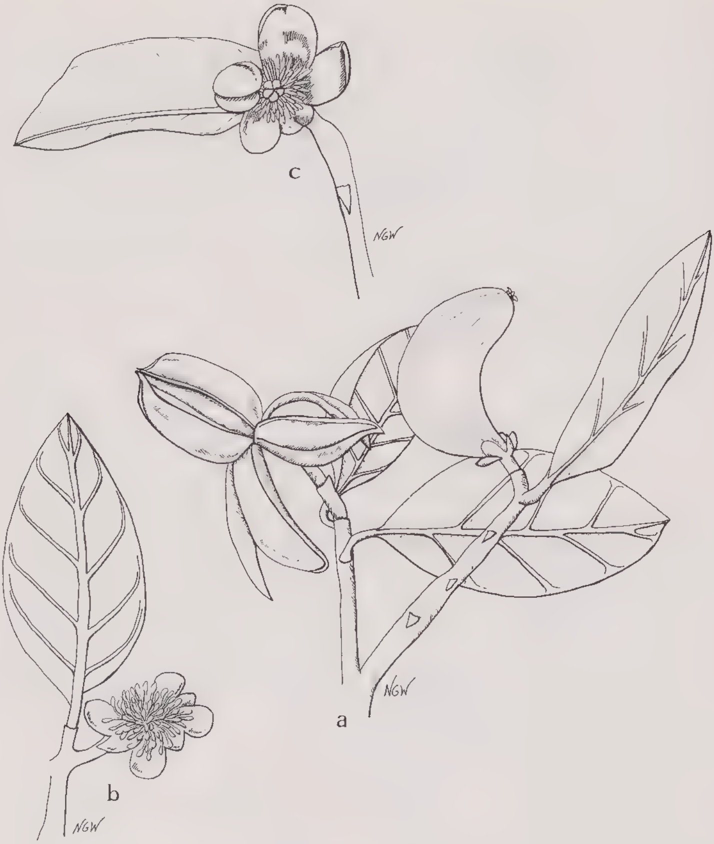


FIGURE 128. *Tomovita plumieri*: a, fruiting branch, × 0.4; b, staminate flower, × 0.4; c, pistillate flower, × 0.4.

many as petals, less often numerous, generally borne with petals on fleshy nectary disk, filaments free, anthers bithecate, extrorse, longitudinally dehiscent; gynoecium 3- to 5-carpellate, ovary compound, unilocular with parietal or basal placentation, ovules 2 to many per placenta, styles 3 to 5, distinct or basally connate, rarely wanting and the stigmas sessile. Fruit a many-seeded capsule; seeds covered with hairs or more commonly the hairs tufted at apex forming a coma, endosperm scanty or wanting.

TYPE: *Tamarix* L.

A temperate to subtropical family of 4 genera and ca. 100 species, native to the Mediterranean and eastward into the Irano-Turanian region of central Asia; also found in maritime and sandy areas in Norway, and in southwestern Africa. Introduced elsewhere as ornamentals.

TAMARIX L.

Tamarix L., Sp. Pl. **1:** 270. 1753.

Shrubs or small trees, branches slender, terete, the branchlets often deciduous. Leaves small, scalelike. Inflorescences racemes, often arranged in panicles. Flowers short-pedicellate, small; sepals 4 or 5, margin entire to minutely denticulate; petals 4 or 5, ovate, elliptic, or obovate; androecium diplo- or haplostemonous, borne variously from a nectariferous disk; gynoecium mostly 3- or 4-carpellate, ovules borne on basal placentae, styles as many as carpels. Fruit a capsule; seeds with apical coma.

LECTOTYPE: *Tamarix gallica* L.; see N. L. Britton, Fl. Bermuda 244. 1918.

A genus of at least 54 species, distributed as for the family. For additional information see B. R. Baum, The genus *Tamarix*, The Israel Academy of Sciences and Humanities, Jerusalem, 1978.

Tamarix gallica L., Sp. Pl. **1:** 270. 1753. FIGURE 129.

Lectotype: Hort. Cliff. 111 (BM); designated by Baum, loc. cit. pg. 33.

Tree, commonly shrubby, to 3(-8) m tall; bark deep purple to blackish, glabrous throughout. Leaves triangular to deltate, 1-2 mm long, base subamplexicaul, apex acute, gray to blue-gray. Inflorescences 2-4 cm long, sometimes arranged in panicles; bracts narrowly triangular-ovate, ca. 1-1.25 mm long. Flowers subsessile, the pedicel < 0.5 mm long; sepals 5, ovate, 1 mm long, ± entire; petals 5, elliptic to ovate-elliptic, 1.5-2 mm long, white to pink; androecium haplostemonous, of 5 antisepalous stamens inserted and confluent with lobes of disk (synlophic), filaments filiform, 2.5-3 mm long, anthers ca. 0.5-0.75 mm long, apiculate; ovary pyriform to obturbinate, 1-1.5 mm long, styles 3, free. Fruits narrowly conical, 3-valvate, ca. 3 mm long; seeds miniscule, with apical coma to ca. 1.25 mm long.

GENERAL DISTRIBUTION: Native to the Mediterranean region from Spain to Italy.

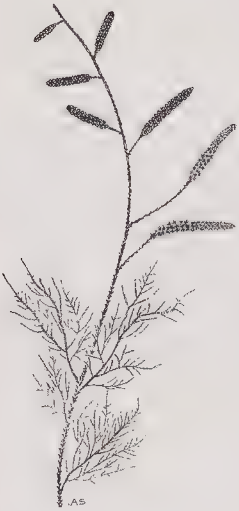
DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, Nevis.

NOTES: Known from single collections from St. Barts (*Questel 189*, NY!) and Antigua (*Beard 347*, A!, NY!).

Baum (loc. cit.) distinguishes this species from *T. canariensis* Willd. as indicated in the following key taken directly from his work:

Racemes usually with papillose rachis; sepals densely denticulate; petals obovate, 1.25-1.5 mm long . . . . *T. canariensis*

Racemes glabrous; sepals entire; petals more or less elliptic (rarely obovate), 1.5-1.75 mm long . . . . *T. gallica*



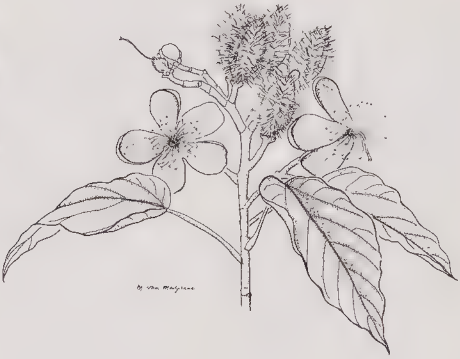


FIGURE 129 (left). *Tamarix gallica*, × 0.3. FIGURE 130 (right). *Bixa orellana*, × 0.3.

Both species are commonly cultivated in the New World, and in the absence of flowering material are virtually indistinguishable, although *T. canariensis* can be somewhat reliably identified on the basis of the papillose indument on the young twigs.

Two other collections, *Proctor 25720* from St. Kitts (A!) and *Stehlé & Stehlé 4999* from Martinique (US!) appear to be *Tamarix nilotica* (Ehrenb.) Bunge. This species resembles *T. canariensis* in its papillose rachis and young vegetative parts, but the flowers are more nearly like those of *T. gallica* with entire sepals and elliptic petals ca. 2 mm long. However, it differs from both of these species in the configuration of the disk and the insertion of the stamens relative to the disk. Both *T. canariensis* and *T. gallica* have the stamens confluent with the lobes of the disk such that they are inserted at its periphery. This is technically called peridiscal insertion, and the disk is termed synlophic. In contrast, the lobes of the disk in *T. nilotica* are apically distinct (hololophic), and the stamens are inserted beneath the disk (hypodiscal insertion). As is readily apparent, the distinction between the species of *Tamarix* is quite technical. On a gross morphological level, all three of these species apear the same. Only upon microscopic examination of the flowers, especially the disk, can one accurately identify a given specimen.

Finally, Howard and Kellogg (J. Arnold Arbor. **68:** 130. 1987), list *Tamarix chinensis* Lour. as cultivated on Anguilla on the basis of a sighting during a collecting trip to the island in 1985. Given the difficulty in identifying species of *Tamarix* without examining the flowers at the microscopic level, it is not possible to know whether or not this identification is correct.

BIXACEAE

by George Staples

BIXACEAE Link, Handbuch **2:** 371. 1829.

Shrubs or small trees with reddish sap. Leaves alternate, simple, palmately veined; stipules small, deciduous. Inflorescences terminal, paniculate. Flowers regular, bisexual, showy; pedicels with 5 glands subtending calyx; sepals 5, free, imbricate, deciduous; petals 5, free, imbricate and twisted; stamens numerous, inserted on annular hypogynous disc, filaments free or shortly connate, anthers hippocrepiform, dehiscing by short terminal slits; ovary superior, bicarpellate, unilocular (or bilocular due to placental intrusion) with numerous anatropous ovules, style 1, terminal, columnar, stigma faintly bilobed. Fruit a spiny, unilocular, bivalved capsule; seeds numerous, enclosed in oily-fleshy, reddish sarcotesta.

TYPE: *Bixa* L.

A monogeneric family endemic to the tropical Americas and West Indies.

BIXA L.

Bixa L., Sp. Pl. **1:** 512. 1753.

Characters of the family.

TYPE: *Bixa orellana* L.

The genus *Bixa* includes one to four species, depending on taxonomic interpretation. *Bixa orellana* is of economic importance as the source of the red-orange dye annatto or achiote, obtained from the sarcotestae.

Bixa orellana L., Sp. Pl. **1:** 512. 1753. FIGURE 130.

Lectotype: Hort. Cliff. 211 (BM); designated by Wijnands, Botany of the Commelins 51. 1983.

Shrub or small tree to 6 m tall; stems rusty pubescent, glabrescent. Leaves with petioles terete, pulvinate at both ends, 4-10 cm long, scaly at first, glabrate; blades ovate, 7-25 × 4-15 cm, base cordate or rounded, ± inequilateral, apex gradually acuminate, margin entire, venation palmate, prominent beneath, reddish, chartaceous, often reddish green, scaly below when young, glabrescent. Panicles few- to many-flowered, erect; bracts deciduous. Flowers with pedicels broader at apex, ca. 5 mm long; glands large, sessile, alternate with sepals; sepals broadly ovate to obovate, concave, 10-12 mm long, apex rounded; petals unequal, obovate, 2-3 × 1-1.5 cm, apex rounded or retuse, membranous, pink; staminal disk ca. 1 mm tall, filaments 1-1.4 cm long, anthers ca. 1 mm long; ovary ellipsoid, ca. 3 mm long, spiny, style slender, gradually thickening upwards, 1-1.5 mm long. Capsules ovoid to globose-ovoid, 3-5 cm long, spines to 9 mm long, soft initially, becoming hard and reddish when dry; seeds obovoid to pyriform, 4-5 mm long.

GENERAL DISTRIBUTION: Tropical Middle and South America and the West Indies; widely cultivated and naturalized in the tropics of the Old World.

DISTRIBUTION IN LESSER ANTILLES: Antigua, Saba!, St. Eustatius!, St. Kitts, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia, St. Vincent, Barbados.

COMMON NAMES: Roucou, roucoyer, rucu, roucu.

NOTE: *Bixa orellana* may be endemic in the West Indies, or perhaps it was introduced there in pre-Columbian times by the Caribbean Indians. Certainly the dye annatto has been used as a cosmetic by the native peoples since before the Spanish arrived in the fifteenth century.

COCHLOSPERMACEAE

by Allan J. Bornstein

COCHLOSPERMACEAE Planchon, London J. Bot. **6:** 305. 1847.

Trees, shrubs, or suffrutices (herbs elsewhere) with reddish sap and usually woody subterranean trunks or rootstocks. Leaves alternate, long-petiolate; blades palmatilobed, deciduous; stipules present, caducous. Inflorescences terminal panicles or racemes, usually appearing before the leaves. Flowers regular, perfect, large and showy; sepals 5, free, imbricate, deciduous; petals 5, free, convolute, deciduous; stamens numerous, free, anthers straight or slightly curved, basifixed, bithecate, dehiscent by 1 or 2 apical pores and sometimes also 2 small basilateral pores; gynoecium 3- to 5-carpellate, ovary superior, generally unilocular with intrusive parietal placentae, ovules numerous, style solitary, stigma denticulate. Fruit a loculicidal capsule separating into 3 to 5 woody, exocarpic valves that separate from and alternate with the membranous, septicidal, endocarpic valves; seeds cochleate to reniform, densely hairy.

TYPE: *Cochlospermum* Kunth.

A pantropical family, often included in the Bixaceae, of two genera and 15 to 20 species. The family is known in the Lesser Antilles only in cultivation, and from very few collections. For additional information see H. H. Poppendieck, Bot. Jahrb. Syst. **101:** 191-265. 1980, whose treatment is followed here in large part.

Cochlospermum Kunth *in* Humb, Bonpl. & Kunth, Nov. Gen. Sp. **5:** 231 (ed. folio), 297 (ed. quarto). 1822, nom. cons.

Characters as for the family.

TYPE: *Cochlospermum religiosum* (L.) Alston (*Bombax religiosum* L. ('religiosa')), not *Cochlospermum gossypium* (L.) DC. (*Bombax gossypium* L., nom. illegit. for *Bombax religiosum*). See D. H. Nicolson (Taxon **28:** 368-369. 1979) for details concerning the typification of *Cochlospermum.*

A pantropical genus of 12 species (per Poppendieck, 1980).

Cochlospermum vitifolium (Willd.) Sprengel, Syst. Veg. ed. 16, **2:** 596. 1825. FIGURE 131.

Basionym: *Bombax vitifolium* Willd., Enum. Pl. 720. 1809.

Type: Brasilia, *Humboldt & Bonpland s.n.* (holotype, B-W #12643, not found on IDC microfiche).

Syn.: *Maximilianea vitifolia* (Willd.) Krug & Urban, Bot. Jahrb. Syst. **15:** 293. 1892.

Tree or shrub 5-15 m tall; branchlets puberulous, soon glabrous. Leaves with petioles to 30 cm long, pubescent, glabrescent; blades cordate-subcirculate in outline, to 25 × 40 cm, 5- to 7-lobed, the lobes oblong to oblong-elliptic, apex acute to caudate-acuminate, margin crenate-serrate to serrate to subentire, glabrous above, pilose beneath (especially along veins), but becoming sparsely-pilose to glabrous with age; stipules subulate, 0.5-0.8 cm long, pilose. Inflorescences terminal spreading panicles with pubescent axes. Flowers with pedicels ca. 3 cm long, pubescent; sepals unequal, outer 2 ovate to ovate-elliptic, 12-18 × 7-10 mm, apex acute, inner 3 broadly ovate to subrotund, 20-25 × 13-20 mm, apex rounded, puberulous to pubescent on both surfaces; petals obovate, 3.8-6 cm long, apex emarginate, golden-yellow, occasionally tinged with red, glabrous; stamens with unequal filaments, 5-20 mm long, yellow throughout or reddish toward base, anthers oblong-linear, 4-8 mm long, with single apical pore and two smaller basilateral pores; ovary subglobose, ca. 5 mm in diameter, densely pubescent to puberulous, style 2.5-3.5 cm long, curved, glabrous. Fruits commonly only 1 per panicle branch, obovoid-ellipsoid, ca. 7-9(-10.5) cm long, apex umbilicate, 5-valved, outer valves gray velvety-tomentose, inner valves golden-yellow; seeds reniform to subcochleate, 4-5.5 mm long, outer surface densely covered with long white hairs.

GENERAL DISTRIBUTION: Native to continental America from northwestern Mexico through Central America to Bolivia in South America; possibly also native to Cuba. Cultivated elsewhere in the West Indies.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe, Dominica!, Martinique, St. Lucia!.

COMMON NAME: Rose-of-Peru.

NOTES: Most of the plants grown in the West Indies are double-flowered forms in which many of the stamens are converted to petals. These plants are generally sterile.

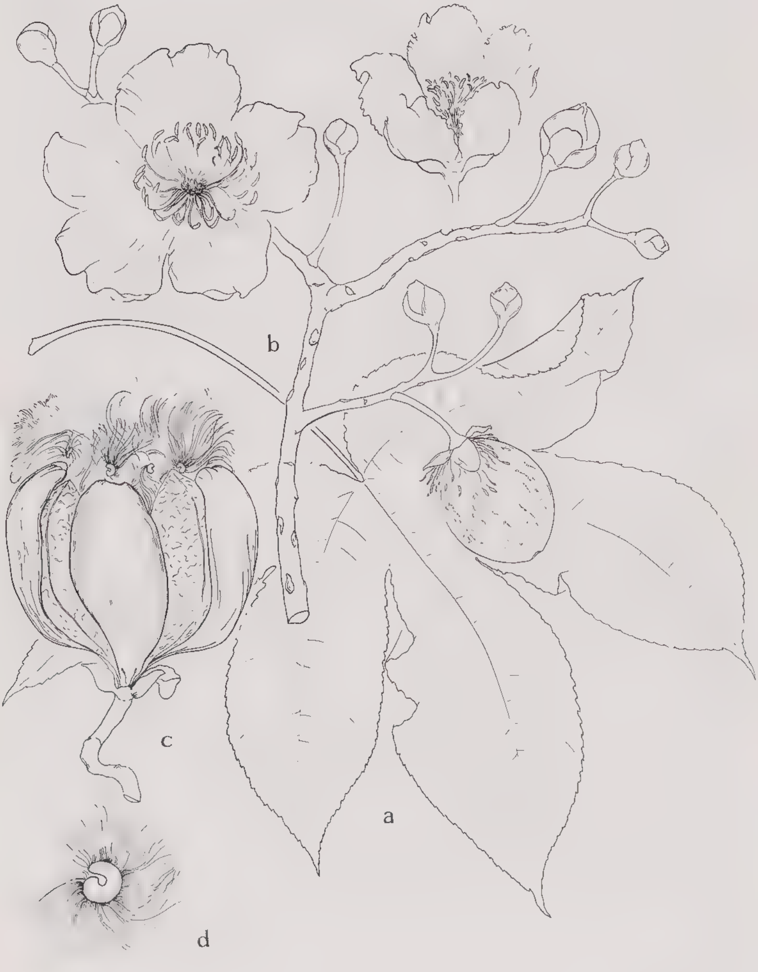


FIGURE 131. *Cochlospermum vitifolium*: a, leaf, × 0.4; b, flowering branch, × 0.4; c, fruit, × 0.4; d, seed, × 5.0.

R. Defillips (*in* Nicolson, Fl. Dominica, unpubl. ms) also lists *Cochlospermum religiosum* as a species cultivated in the Roseau Botanic Garden. He cites *Hodge 3950* as a representative specimen and distinguishes this species from *C. vitifolium* on the basis of its tomentose lower leaf surface, glabrous ovary, and yellow stamens (vs. glabrous lower leaf surface, pubescent ovary, and stamens red below). I have seen the Hodge collection at GH, and although I cannot examine the flowers, the leaves are obviously only puberulous along the veins below, similar to the common condition in *C. vitifolium.* Poppendieck has annotated the GH specimen as *C. vitifolium,* and in his monograph gives no indication that *C. religiosum* (a species native to India and southeast Asia) occurs in cultivation in the New World.

CANELLACEAE

by Allan J. Bornstein

CANELLACEAE C. Martius, Nov. Gen. Sp. Pl. **3:** 170. 1832.

Aromatic trees or shrubs, glabrous throughout. Leaves alternate, simple, entire, coriaceous, glandular-punctate; stipules absent. Inflorescences terminal or axillary corymbiform cymes. Flowers regular, perfect; sepals 3, imbricate, persistent; petals 4 to 12, in one or more whorls, free or basally connate, imbricate; stamens 6 to 40, united into a tube surrounding the ovary, anthers attached to exterior of this tube, contiguous, linear, bithecate, extrorse, longitudinally dehiscent; ovary superior, 2- to 6-carpellate but unilocular with 2 to many ovules borne on each parietal placenta, style solitary, thick, stigma lobes as many as carpels. Fruit a berry with 2 or more seeds; seeds with abundant oily endosperm.

TYPE: *Canella* P. Browne.

A tropical family of five genera and 16 species. Three genera are found in the West Indies and South America (*Canella*, *Cinnamodendron*, and *Pleodendron*), and one each in east Africa (*Warburgia*) and Madagascar (*Cinnamosma*). Only *Canella* is found in the Lesser Antilles.

NOTE: This family, in the past, has often been considered to be closely related to the Violales in the Dilleniidae, hence its present placement in this flora. More recently it is generally agreed that it is better placed in the Magnoliales, perhaps near the Myristicaceae or possibly the Annonaceae.

CANELLA P. Browne

Canella P. Browne, Civ. Nat. Hist. Jamaica 275, *pl. 27, fig. 3.* 1756, nom. cons.

Characters as for the family but with the following specific features:
Evergreen trees or shrubs, the bark and leaves with pleasant cinnamon-like odor. Flowers with 5 petals borne in a single whorl, basally connate;

stamens 10; ovary with 2 or 3 parietal placentae, each with 2 ovules, stigma 2- or 3-lobed. Fruits usually with 2 to 4 seeds.

TYPE: *Canella winterana* (L.) Gaertner (*Laurus winterana* L.).

A monotypic genus of the West Indies, Bahamas, and southern Florida, and also reaching the extreme northern portions of South America.

Canella winterana (L.) Gaertner, Fruct. Sem. Pl. **1:** 373, *pl. 77, fig. 2.* 1788. FIGURE 132.

Basionym: *Laurus winterana* L., Sp. Pl. **1:** 371. 1753.
Type: Not designated.
Syn.: *Winterana canella* L., Syst. Nat. ed. 10, **2:** 1045. 1759, nom. illegit.
Canella alba Murray, Syst. Veg. ed. **14:** 443. 1784, nom. illegit.
Canella laurifolia Lodd. ex Sweet, Hort. Brit., ed. **1:** 65. 1826, nom. nud.
Canella obtusifolia Miers, Ann. Mag. Nat. Hist. ser. 3, **1:** 348. 1858; Contr. Bot. 118, *pl. 23b.* 1858. (Type: Venezuela, Maracaibo, *Plée 720* (holotype, P).)
Winterana obtusifolia (Miers) Warb. *in* Engl. & Prantl, Nat. Pflanzenfam. **3**(6): 317. 1895.

Small tree or less often a shrub to 10 m tall, rarely more; bark gray, aromatic (especially the inner bark). Leaves with petioles to 10 mm long; blades obovate to oblanceolate or spatulate, 2.2-10.4 × 0.9-4.7 cm, base attenuate, apex rounded to obtuse, occasionally emarginate, margin often slightly recurved and thickened, dark green and ± shiny above, dull beneath, minutely glandular-punctate. Inflorescences terminal, rarely also axillary. Flowers with pedicels 3-6 mm long; sepals reniform-suborbiculate, 2-3 mm long, ± ciliolate; petals obovate to obovate-elliptic, 5-5.5 mm long, apex obtuse, red-purple and glaucous without, yellowish at base within; stamen tube 3-4 mm long, anthers yellow; ovary ovoid, ca. 2.5 mm long, style to 1.5 mm long. Fruits obovoid to globose, 7-10 mm in diameter, green becoming red to purple-black; seeds ovoid to obovoid-subglobose, 5-6 mm long, shiny black.

GENERAL DISTRIBUTION: Southern Florida, Bahamas south through the Lesser Antilles, and northern South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, Antigua!, Barbuda!, Montserrat!, Guadeloupe!, La Désirade, Les Saintes, Dominica, Martinique, St. Lucia!, St. Vincent, Barbados.

COMMON NAMES: Pepper cinnamon, wild cinnamon, bastard cinnamon, bois-cannelle, canellier blanc, canellier bâtard, bwa kannèl, kannèl.

NOTES: The cinnamonlike bark of this species has been used as a stimulant, spice, and tonic in various regions of the West Indies.

Several recent treatments indicate that the northern South American element of this taxon is a distinct species, originally described by Miers as *Canella obtusifolia.* On the basis of Miers' description and associated plate, I find no evidence for regarding this 'species' as distinct. I have not seen the type.

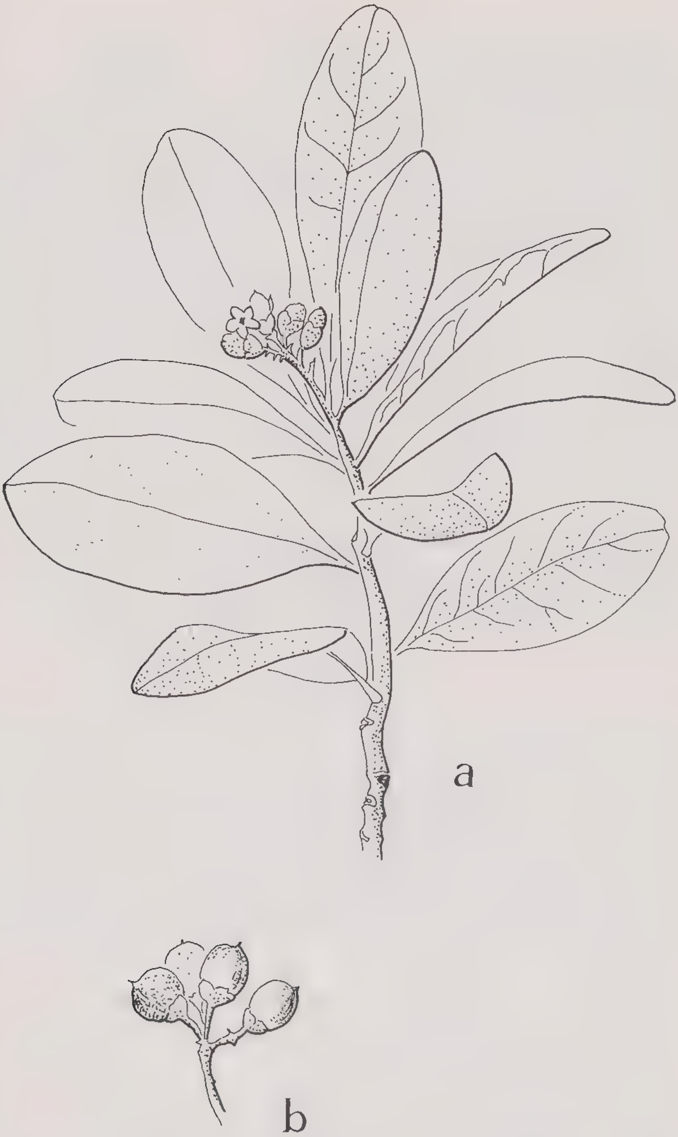


Figure 132. *Canella winterana*: a, flowering branch, × 0.8; b, fruit, × 0.8.

VIOLACEAE

by Allan J. Bornstein

VIOLACEAE Batsch, Tab. Affin. Regni Veg. 57. 1802 ('Violariae').

Herbs (or shrubs elsewhere), perennial or rarely annual, erect, decumbent, or scandent. Leaves alternate or less often opposite, simple, entire to variously dissected; stipules present, usually small, persistent in Lesser Antillean taxa. Inflorescences axillary, racemiform or paniculiform cymes, or the flowers solitary. Flowers irregular, perfect; pedicels bibracteolate; sepals 5, free or nearly so, imbricate, persistent; petals 5, commonly unequal, imbricate or convolute, the lowermost larger, spurred or unguiculate; stamens 5, free or connivent by their anthers into a tube around the gynoecium, filaments very short or absent, anthers erect, introrse, longitudinally dehiscent, two abaxial ones with basal nectariferous gland, connective often prolonged beyond thecae into a laminar appendage; ovary superior, 3-carpellate, unilocular with 3 parietal placentae, ovules 1 to many per placenta, style simple, distally thickened, stigma entire or divided. Fruit a loculicidal, 3-valved capsule; seeds forcibly ejected by contractile valves, with copious oily endosperm.

TYPE: *Viola* L.

A cosmopolitan family of 16 to 20 genera and 800 to 900 species. Two genera are present in the Lesser Antilles, *Viola*, principally a temperate or tropical montane genus, and *Hybanthus*, largely tropical.

INTRODUCED TAXA

Corynostylis hybanthus (L.) C. Martius, a synonym of *C. arborea* (L.) S. F. Blake, was reported by Grisebach from St. Vincent on the basis of a Guilding collection. Alexander Anderson introduced this plant to the St. Vincent Botanic Garden from Guyana, and the Guilding specimen was presumably made from the plant in cultivation. This species is native to northern South America as far south as equatorial Brazil, but apparently is also found in Mexico. No modern collections are known from the Lesser Antilles. For a complete synonymy of this species and a detailed review of the Violaceae in Colombia, see L. B. Smith & A. Fernández-Pérez, Caldasia **6:** 83-181, *pl. 1-19.* 1954.

KEY TO THE GENERA

Stipules large, foliaceous, laciniate; sepals with prominent basal auricle; lowermost petal spurred but not unguiculate; leaves always alternate .... *Viola*

Stipules small, non-foliaceous, entire; sepals without basal auricle; lowermost petal unguiculate, not spurred; leaves alternate, subopposite, or opposite .... *Hybanthus*

HYBANTHUS Jacq.

Hybanthus Jacq., Enum. Syst. Pl. 2, 17. 1760, nom. cons.

Syn.: *Ionidium* Vent., Jard. Malmaison **1:** 27. 1803. Type: *Ionidium polygalaefolium* Vent., nom. illegit. for *Viola verticillata* Ortega.

Herbs, or shrubs elsewhere, perennial or less often annual, erect or decumbent. Leaves variously arranged, alternate, subopposite, or opposite, subentire; stipules small, nonfoliaceous, persistent. Inflorescences reduced to a single axillary flower. Flowers with sepals not prolonged at base into an auricle; petals distinctly unequal, the lowermost much larger, unguiculate, base subsaccate, but not spurred; stamens free; ovary with 1 or 2 ovules per placenta, style incurved-clavate at apex, stigma anterior.

TYPE: *Hybanthus havanensis* Jacq.

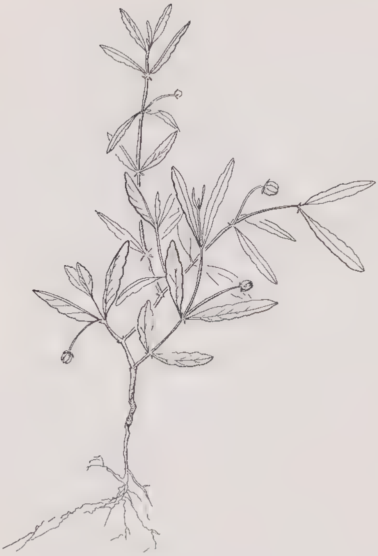
A subtropical to tropical genus of over 100 species, but extending into temperate areas.

Hybanthus linearifolius (M. Vahl) Urban, Symb. Antill. **5:** 436. 1908.
FIGURE 133.

Basionym: *Viola linearifolia* M. Vahl *in* West, Bidr. Beskr. St^{e} Croix 303. 1793. Type: St. Croix, *West s.n.* (holotype, C; fragment at A!; IDC 2201. 79: I. 7, photo!).

Syn.: *Ionidium strictum* Vent., Jard. Malmaison **1:** 27. 1803. (Type: Saint-Domingue (Santo Domingo), *Poiteau s.n.* (P-JU #12789; IDC 6206. 946: I. 1, photo!).)
Viola stricta (Vent.) Pers., Syn. Pl. **1:** 256. 1805.
Ionidium linarifolium (M. Vahl) Ging. *in* DC., Prodr. **1:** 309. 1824, sphalma.
Solea stricta (Vent.) Sprengel, Syst. Veg. ed. 16, **1:** 803. 1824, nom. illegit. citing *Viola linearifolia* M. Vahl.
Ionidium suffruticosum Wikström, Kongl. Vetensk. Acad. Handl. **1827:** 61. 1827, nom. nud.
Hybanthus strictus (Vent.) Sprengel ex Steudel, Nomencl. Bot. ed. 2, **1:** 780. 1840.
Calceolaria stricta (Vent.) Kuntze, Revis. Gen. Pl. **1:** 41. 1891.
Hybanthus caribaeus Urban, Symb. Antill. **5:** 439. 1908. (Syntypes: Antigua, *Wullschlagel 21*, *Duss 9*; Guadeloupe, *Bertero s.n.*, *Duchassaing s.n.*, *Perottet s.n.*, *L'Herminier s.n.*; La Désirade, *Duss 2959*.)
Hybanthus portoricensis Urban, Symb. Antill. **5:** 438. 1908. (Syntypes: Puerto Rico, *Sintenis 3283 & 3582* (K, photo at A!); Haiti, *Buch 775*.)
Calceolaria linearifolia (M. Vahl) Britton, Brooklyn Bot. Gard. Mem. **1:** 70. 1918.

Annual or perennial, erect or decumbent herb, to 40 cm tall, subglabrous to puberulent. Leaves with petioles 0-6 mm long; blades mostly oblong-linear to oblanceolate, but varying to elliptic or obovate-elliptic, 0.8-5.1 × 0.3-1.1 cm, base cuneate, apex obtuse to acute, margin subentire to crenulate, subglabrous to obscurely puberulent above, glabrous and paler beneath; stipules linear-subulate to lanceolate, to 2 mm long, entire or with small, irregularly spaced teeth, generally glabrous. Flowers with peduncles filiform, 0.6-2 cm long, puberulent; sepals ovate-lanceolate, 2.5-3 mm long; corolla white, tinged with red or purple (especially the anterior petal), lateral and



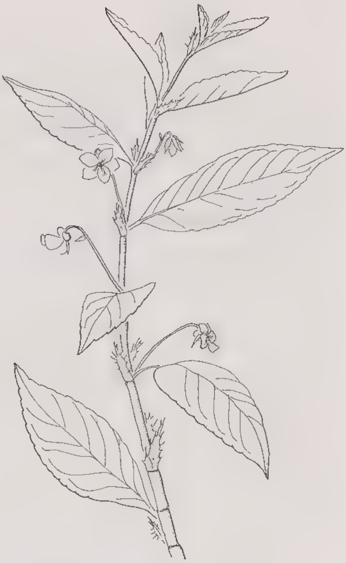


FIGURE 133 (left). *Hybanthus linearifolius,* × 0.35. FIGURE 134 (right). *Viola stipularis,* × 0.35.

upper petals much smaller, 3-5 mm long, anterior petal with claw 3-4 mm long, limb deltate to suborbiculate, 4-5.5 mm long; stamens 1.5-2 mm long including the ovate, orangish connective; ovary subglobose, ca. 1 mm long, style ca. 1.5 mm long. Fruits globose, or nearly so, 3.5-4 mm long; seeds generally 3 or 4 per capsule, ovoid, 1.8-2 mm long, brownish black.

GENERAL DISTRIBUTION: Cuba, Hispaniola, Puerto Rico and the Virgin Islands, and the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, Barbuda, Guadeloupe!, La Désirade.

COMMON NAMES: Petit ipéca, herbe à trément, ti-thym.

NOTES: The type collection of *Hybanthus linearifolius* was not actually specified in the original publication. Vahl later cited the West collection (Eclog. Amer. **2:** 18. 1798), which was surely the same collection that he saw in describing the species for West's publication.

The combination *Ionidium linearifolium* is usually attributed to Britton (*in* Britton & P. Wilson, Bot. Porto Rico **5:** 597. 1924). However, Gingins clearly made this same combination 100 years earlier in de Candolle's Prodromus, simply using the spelling as indicated by Vahl in his Eclogae Americanae.

The original description of *Hybanthus caribaeus* is scarcely distinguishable from that given for *H. linearifolius*, a variable species of wide distribution. Fournet (1978) separates these taxa on the basis of petiole length (1-5 vs. 0-1 mm) and peduncle length (12-20 vs. 7-15 mm) respectively, but these ranges overlap even on a single specimen. We have not found any reliable characters to differentiate these species, and therefore *H. caribaeus* is referred to synonymy of *H. linearifolius.*

Urban distinguished *Hybanthus portoricensis* by its shorter, broader leaves. Britton and Wilson (Bot. Porto Rico **5:** 597. 1924) suggest that the leaves are 2 to 3 times as long as wide, versus 4 to 10 times as long as wide for *H. linearifolius.* Monachino (1940) and Questel (1941) recognize *H. portoricensis* in the flora of St. Barts as does Fournet for the island of Guadeloupe. In all collections seen that are referrable to *H. portoricensis* the plants are variable or stunted. Browsed specimens of *H. linearifolius* also produce comparably broad leaves, which leads us to believe that this taxon is at best a variety. Rather than potentially adding to the already extensive synonymy of this species by creating a new combination at the varietal level, we follow Liogier (Fl. Espaniola **1:** 221. 1982) by considering this taxon as a synonym of *H. linearifolius.* A detailed, field-oriented study of this problem is warranted.

VIOLA L.

Viola L., Sp. Pl. **2:** 933. 1753.

Herbs or subshrubs. Leaves alternate; stipules large, foliaceous, persistent. Inflorescences reduced to a single axillary flower. Flowers with sepals auriculate at base; petals ± unequal, the lowermost slightly larger and spurred at base; stamens connivent by their anthers into a tube surrounding the gynoecium; ovary with 3 to many ovules per placenta, style often enlarged at apex, ± capitate, stigma anterior or terminal.

LECTOTYPE: *Viola odorata* L.; vide N. L. Britton & A. Brown, Ill. Fl. N. U.S., ed. 2, **2:** 546. 1913.

A worldwide genus of ca. 400 species, best developed in the temperate zone and the high montane regions in the tropics.

Viola stipularis Sw., Prodr. 117. 1788; Fl. Ind. Occid. **3:** 1956. 1806.
FIGURE 134.

Type: St. Kitts, *Masson s.n.* (holotype, BM).
Syn.: *Viola persicariifolia* Poiret *in* Lam., Encycl. **8:** 638. 1808, nom. illegit. for *Viola stipularis* Sw., non Cav. (1800).

Spreading herb or subshrub with prostrate, woody, elongated stems commonly rooting at nodes, and erect stems to 30 cm long, glabrous throughout. Leaves with petioles to 1.8 cm long, but usually ≤ 1 cm; blades variable in size, those of prostrate stems generally much smaller, narrowly elliptic to ovate, oblique, 0.8-10.4 × 0.5-3.7 cm, base cuneate, apex acute to long-acuminate, margin crenulate-serrulate; stipules usually longer than petioles, oblong-lanceolate to lance-elliptic, to 2.5 cm long, long-fimbriate to laciniate. Flowers with peduncles filiform, 1.4-5.7 cm long; sepals linear-subulate to lanceolate, 4.5-8.5 mm long, apex acute; corolla pale-pink, violet, or bluish white, lateral and upper petals oblong-ovate or oblong-elliptic to obovate, 8-9 × 2.5-3.5 mm, apex rounded, anterior petal obovate, ca. 10 × 4.5 mm, including the very short spur (< 1 mm long), apex rounded; stamens ca. 3 mm long, anthers as long to twice as long as triangular-deltate, orangish connective; ovary oblong, ca. 2 mm long, style 2-2.25 mm long, apex fimbriate, stigma aperture terminal. Fruits oblong-ellipsoid, 5-8.5 mm long; seeds ovoid or ellipsoid, 1-1.25 mm long.

GENERAL DISTRIBUTION: Central America, northern South America, the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Nevis!, Guadeloupe!, Dominica!, Martinique!.

COMMON NAMES: Violette, violette-montagne, faux-ipéca.

NOTE: A species of high elevation rain forests or mossy-elfin forests above 1000 meters.

FLACOURTIACEAE

by Allan J. Bornstein

FLACOURTIACEAE DC., Prodr. **1:** 255. 1824 ('Flacourtianeae').

Syn.: Samydaceae Vent., Mém. Cl. Sci. Math. Inst. Natl. France **1807**(2): 149. 1808 ('Samydeae'). (Type: *Samyda* Jacq., nom. cons.)

Trees or shrubs, sometimes with axillary spines or armed with clustered spines on old branches and trunk. Leaves alternate, commonly distichous, simple, entire or glandular-crenate or -serrate, penninerved or plinerved from base, commonly pellucid-punctate or -lineate; stipules usually present, generally caducous. Inflorescences axillary or less often terminal racemes, panicles, spikes, or corymbs, or reduced to fascicles. Flowers regular, perfect or unisexual (plants then dioecious or polygamous); pedicels articulate; sepals 3 to 6, occasionally more, free or variously connate, usually imbricate, mostly persistent; petals 3 to 8, free, normally imbricate, alternating with sepals and caducous, or wanting; receptacle with or without disklike lobes or appendages (glands) or staminodes; stamens mostly numerous, free or filaments united, hypogynous or in epipetalous bundles, anthers bilocular, longitudinally dehiscent; ovary superior or semi-inferior with 2 to 9 parietal placentae, or rarely plurilocular with axile placentation, ovules few or numerous per placenta, style 1 to many, free or united, stigma simple or 2- to 5-lobed. Fruit a berry, drupe, or capsule; seeds 1 to many, often arillate or pulpy, with abundant endosperm.

TYPE: *Flacourtia* L'Hér.

A widely distributed tropical family of ca. 85 genera and over 800 species with occasional extensions into temperate areas. For additional information see H. O. Sleumer, Fl. Neotropica Monogr. **22:** 1-499. 1980.

INTRODUCED TAXA

The following Old World taxa are represented in our area from specimens collected in the Roseau Botanic Garden, Dominica.

Hydnocarpus wightianus Blume, Rumphia **4:** 22. 1849 ('wightiana'). This species has oblong-elliptic, penninerved leaves, 10-25 cm long, with an abruptly acuminate apex, unisexual flowers borne in short axillary cymes or fascicles, petals with inner scalelike appendage, and large, globose berries with thickened pericarp. Seeds of several species of *Hydnocarpus* are the source of Chaulmoogra Oil, at one time used in the treatment of leprosy.

Scolopia chinensis (Lour.) Clos, Ann. Sci. Nat. Bot. sér. 4, **8:** 249. 1857 (basionym: *Phoberos chinensis* Lour., Fl. Cochinch. **1:** 318. 1790), is readily recognized by its oblong-elliptic, entire-margined leaves with two glands at the petiole-blade juncture, complete flowers borne in axillary racemes, and the numerous stamens with the anther connective prolonged beyond the thecae into an apiculate appendage.

KEY TO THE GENERA

1. Ovary semi-inferior; stamens in fascicles of 3 to 7 opposite the petals .... *Homalium*
1. Ovary superior; stamens free or united into a tube.
    2. Leaves plinerved; petals present (or rarely abortive); inflorescences terminal .... *Prockia*
    2. Leaves penninerved; petals absent; inflorescences axillary.
        3. Flowers unisexual, the plants dioecious or polygamous; fruit a berry or drupe.
            4. Ovary unilocular with 2 to 4 parietal placentae; styles 2, rarely more; fruit a dry berry, few-seeded .... *Xylosma*
            4. Ovary 4- to 6-locular by false septa; styles as many as locules, free or connate; fruit a berrylike drupe with twice as many pyrenes as styles .... *Flacourtia*
        3. Flowers perfect; fruit a capsule, sometimes tardily dehiscent.
            5. Staminodes present, alternating with filaments .... *Casearia*
            5. Staminodes absent.
                6. Sepals free or only basally connate, reflexed; filaments free .... *Laetia*
                6. Sepals connate into a tube; filaments fused into a tube, this adnate to calyx tube .... *Samyda*

CASEARIA Jacq.

Casearia Jacq., Enum. Syst. Pl. 4, 21. 1760.

Trees or shrubs, generally unarmed. Leaves distichous, petiolate; blades entire or crenate to serrate, penninerved, membranous to coriaceous, with pellucid dots or lines; stipules small, caducous. Inflorescences axillary fascicles, sessile or pedunculate. Flowers perfect; sepals 5 to 9, connate at base, imbricate, ± persistent; petals absent; receptacle with intra- or interstaminal staminodes; stamens 6 to 24, uniseriate, ± perigynous, filaments free, anthers globose to ovoid; ovary superior, unilocular with 3 parietal, multiovulate placentae, style simple or apically trifid, stigma(s) capitate. Fruit a capsule, 3- or 4-valved, dry or fleshy; seeds generally numerous, arillate.

Lectotype: *Casearia nitida* Jacq.; see R. W. Kiger, Taxon **33:** 455-456. 1984 for important comments.

A pantropical genus of ca. 180 species with greatest diversity in the New World.

Key to the Species

1. Style trifid at apex; sepals 1.5-2 mm long; fruits 3-4 mm in dia. . *C. sylvestris*
1. Style simple; sepals 3.5-6 mm long; fruits ≥ 6 mm in dia.
    2. Stamens 8 to 10; staminodes interstaminal; flowers in sessile fascicles; fruits 6-12 mm in dia.
        3. Stamens 10; stipules glabrous; fruits smooth . . . . *C. decandra*
        3. Stamens 8; stipules pubescent; fruits ridged . . . . *C. guianensis*
    2. Stamens 15 to 24; staminodes intrastaminal; flowers in short-pedunculate fascicles or racemes; fruits 3-4 cm in dia. . . . . *C. tremula*

Casearia decandra Jacq., Enum. Syst. Pl. 21. 1760; Select. Stirp. Amer. Hist. 133, *t. 85.* 1763.

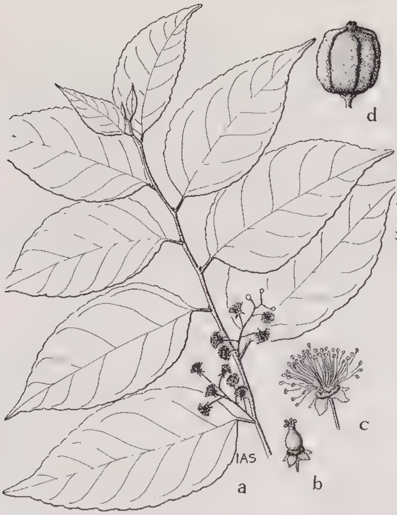
Type: Martinique near Case Pilote, April 1755, *Jacquin s.n.* (lectotype, BM; see Kiger, Taxon **33:** 458-459. 1984).

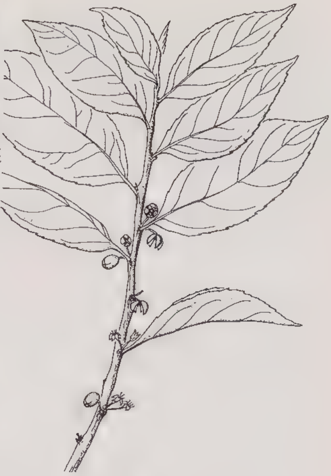
Syn.: *Casearia parviflora* Jacq., Select. Stirp. Amer. Hist. 65, *t. 127.* 1780, nom. superfl. for *Casearia decandra* Jacq.

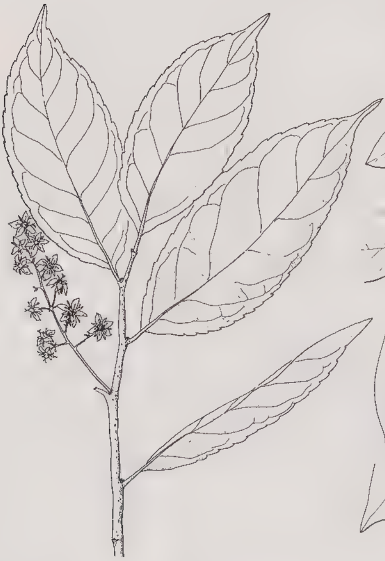
Casearia parvifolia Willd., Sp. Pl. **2:** 628. 1799, nom. superfl. for *Casearia decandra* Jacq.

Samyda parvifolia Poiret *in* Lam., Encycl. **6:** 492. 1805, based on *C. decandra* Jacq.

Shrub or small tree to 12 m tall, occasionally larger. Leaves with petioles 2-5 mm long; blades lance-elliptic to elliptic to ovate-elliptic, 2.5-9.5(-13.2) × 1.4-4.8(-6) cm, base cuneate or less often rounded, apex long-acuminate, sometimes abruptly so, margin serrulate or serrate to crenate, membranous becoming chartaceous, weakly pellucid-punctate or -lineate, glabrous or with tufts of hairs along veins or in vein axils beneath; stipules linear-subulate, 2-5 mm long, glabrous. Inflorescences sessile, few- to many-flowered, often appearing before or with new foliage. Flowers white, cream, or greenish white, with pedicels 5-8(-11) mm long, articulate ca. 1-2 mm above base,







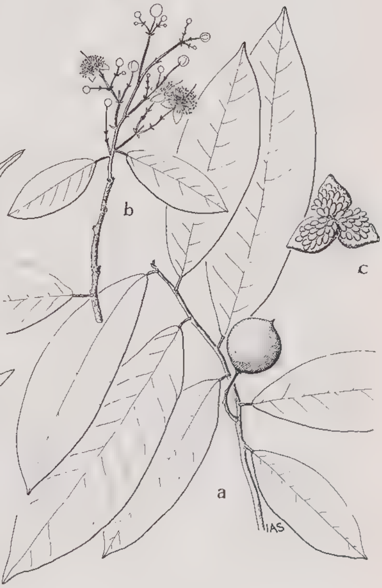


FIGURE 135 (upper left). *Flacourtia jangomas*: a, flowering branch, × 0.3; b, pistillate stage, × 2.0; c, staminate stage, × 2.0; d, fruit, × 1.0. FIGURE 136 (upper right). *Casearia guianensis*, × 0.3. FIGURE 137 (lower left). *Homalium racemosum*, × 0.3. FIGURE 138 (lower right). *Laetia thamnia*: a, fruiting branch, × 0.3; b, flowering branch, × 0.3; c, open fruit, × 0.3.

puberulous; sepals 5, oblong-lanceolate, 3.5-5.5 mm long, connate below, reflexed at anthesis, yellow- to gray-puberulent on both surfaces; staminodes oblong-clavate, 1-1.5 mm long, densely villous, interstaminal; stamens 10, to ca. 5 mm long, filaments commonly pilose near base, anthers ellipsoid; ovary ovoid, tapering to style, the style 2-3 mm long, pilose. Fruits globose, 8-10 mm in diameter, opening by 3 valves, red to orange, laxly pubescent, glabrescent; seeds compressed-ovoid, 4-5 mm long.

GENERAL DISTRIBUTION: Honduras south to Brazil, northern Argentina, Paraguay-Bolivia, and in the West Indies south from Hispaniola through the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Saba!, St. Eustatius!, St. Kitts, Montserrat, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados.

COMMON NAMES: Coco-ravet, bois jaune, jaune d'oeuf, jumbie-apple, wild-cherry.

NOTE: For an excellent discussion concerning the disposition of excluded taxa from *Samyda* (many of which are placed in the genus *Casearia*), including, in this case, pertinent information regarding the typification of *C. decandra* and the confusion surrounding *C. parviflora* and *C. parvifolia*, see R. W. Kiger, Taxon **33:** 445-468. 1984.

Casearia guianensis (Aublet) Urban, Symb. Antill. **3:** 322. 1902.
FIGURE 136.

Basionym: *Iroucana guianensis* Aublet, Hist. Pl. Guiane **1:** 329, *t. 127* ('guyannensis'). 1775.

Type: French Guiana, prope maris littora Caïennae & Guianae, *Aublet s.n.* (holotype, BM).

Syn.: *Athenaea guianensis* (Aublet) J. Gmelin, Syst. Nat. ed. **13**(1): 629. 1791.
Casearia ramiflora M. Vahl, Symb. Bot. **2:** 50. 1791, nom. superfl. for *Iroucana guianensis* Aublet.

Shrub or small tree to 6 m tall, young branches appressed rusty- or ochre-pubescent. Leaves with petioles 5-8 mm long, appressed pubescent, glabrescent; blades oblong-obovate to obovate-elliptic, (3.5-)4.9-14.8 × 2.5-6.9 cm, base obtuse to cuneate, apex abruptly short-acuminate or cuspidate, margin crenate to crenate-serrate, chartaceous, with numerous and conspicuous pellucid dots and lines, pubescent when young, occasionally densely so, remaining so along midrib and lateral veins, especially beneath; stipules linear-subulate to lanceolate, 2-4.5 mm long, appressed pubescent. Inflorescences sessile, few- to several-flowered, commonly in axils of defoliate branches. Flowers white to greenish yellow, with pedicels 4-6 mm long, articulate from at base to near middle, puberulous to pubescent below articulation; sepals 5, oblong, 3.5-5 mm long, apex obtuse, sparsely appressed pubescent without, glabrous within; staminodes oblong-spatulate, ca. 1 mm long, densely villous, interstaminal; stamens 8 (rarely 9), 2.5-3.5 mm long, fused with staminodes into short tube, filaments glabrous, anthers oblong;

ovary ovoid, villous, style ca. 2 mm long, glabrous. Fruits elliptic to subglobose with six longitudinal ridges, 6-8(-11) mm in diameter, green to red, opening by 3 valves, the valves red within, sparsely pubescent, subglabrescent; seeds ± ovoid, ca. 3 mm long with orange aril.

GENERAL DISTRIBUTION: Panama, northern South America from Colombia southeastward into the Guianas and Brazil; in West Indies from Cuba through Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Guadeloupe, Martinique, St. Lucia, St. Vincent!, Grenada!, Barbados.

NOTE: Description based, in part, on material examined from areas other than the Lesser Antilles.

Casearia sylvestris Sw., Fl. Ind. Occid. **2**: 752. 1798.

Type: Jamaica, *Swartz s.n.* (holotype, BM).

Syn.: *Samyda parviflora* L., Syst. Veg. ed. **10**(2): 1025. 1759, non Loefl. ex L. (1758). (Type: Jamaica, *P. Browne s.n.* (lectotype, LINN 588.1, ex herb. Browne; see Kiger, Taxon **33**: 456-457. 1984).)

Casearia parviflora J. Gmelin, Syst. Veg. ed. **13**(1): 700. 1791, nom. illegit. based on *Samyda parviflora* L.

Casearia parviflora Willd., Sp. Pl. **2**: 627. 1799, nom. illegit. based on *Samyda parviflora* L.

Shrub or small tree to 3(-6) m tall, vegetatively ± glabrous. Leaves with petioles 3-8 mm long; blades oblong-ovate to ovate-elliptic, 4.9-13.9 × 2.1-5.2 cm, base obtuse to cuneate, apex long-acuminate, margin subentire to crenate-serrate, membranous to subcoriaceous with numerous and conspicuous pellucid dots and lines, ± glabrous; stipules broadly ovate to suborbiculate, ca. 1 mm long, ciliate. Inflorescences sessile, few- to many-flowered, appearing with foliage. Flowers white, cream, or greenish, with pedicels 2-5 mm long, articulate ca. 2 mm above base, glabrous to puberulous; sepals 5, oblong-ovoid, 1.5-2 mm long, ciliate, otherwise glabrous; staminodes oblong, ca. 0.75 mm long, short-villous, interstaminal; stamens 10 (rarely more), 1-1.75 mm long, filaments glabrous to sparsely puberulous, anthers subglobose with small apical gland; ovary ovoid, glabrous, style as long as ovary, 0.75-1 mm long, trifid at apex, stigmas capitate. Fruits globose or subglobose, 3-4 mm in diameter, opening by 3 valves, green becoming red, glabrous; seeds 2 to 8 but usually 3 per fruit, ovoid-ellipsoid, 1.5-2 mm long, with reddish aril.

GENERAL DISTRIBUTION: Central Mexico south to northern Argentina and Uruguay; in West Indies from Cuba through Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Saba, St. Kitts!, Guadeloupe (?), Martinique!, St. Lucia, St. Vincent, Grenada!, Barbados.

COMMON NAME: Crack-open.

Casearia tremula (Griseb.) Griseb. ex C. Wright *in* Sauvalle, Anales Acad. Ci. Méd. Habana **5:** 201. 1868.

Basionym: *Zuelania tremula* Griseb., Cat. Pl. Cub. 9. 1866.
Type: Cuba, *Wright 2640* (holotype, GOET; isotypes, BM, G, GH!, fragm. NY, P).
Syn.: *Guidonia tremula* (Griseb.) M. Gomez, Anales Soc. Esp. Hist. Nat. **23:** 56. 1894.
Casearia spiralis I. M. Johnston, Proc. Amer. Acad. Arts **40:** 691. 1905. (Type: Venezuela, Margarita Island, Nueva Esparta, El Valle, *I. M. Johnston 283* (holotype, GH!; isotype, US).)
Casearia bonariensis Bold., Fl. Ned. W. Ind. Eil. 290. 1913; Fl. Dutch W. Ind. Is. **2:** 68, *pl. 8.* 1914. (Type: Curaçao, hills east of Westpunt, *Boldingh 4942* (holotype, U; isotype, NY).)

Shrub or tree to 5 m tall, glabrous. Leaves with petioles 1-1.8 cm long; blades oblong-ovate to elliptic, 3-11.5 × 1.7-5.7 cm, base rounded or obtuse to cuneate, slightly asymmetric, apex obtuse to acute or short-acuminate, margin subentire to crenulate-serrulate, subcoriaceous, with numerous and conspicuous pellucid dots and lines, glabrous or pubescent along lower half of midrib beneath; stipules ovate, 3-5 mm long, apex acuminate, glabrous or subciliolate. Inflorescences short-pedunculate fascicles or racemes, few- to several-flowered, appearing with foliage. Flowers white, cream, or greenish, with pedicels 0.5-1.5 cm long, articulate 2-3 mm above base, glabrous; sepals 6 to 9, unequal, broadly elliptic to oblong-ovate to obovate, concave, 3.5-7 mm long, reflexed, glabrous; staminodes spatulate, ca. 1 mm long, densely villose to tomentose, intrastaminal; stamens 15 to 24, 4-5 mm long, filaments glabrous or very sparsely pilose near base, anthers oblong with apiculate connective; ovary ovoid to subglobose, ca. 2-2.5 mm long, glabrous, style stout, 1 mm long. Fruits subglobose to globose, 3-4 cm in diameter, opening by 3 or 4 valves, green to dark purple, glabrous; seeds numerous, ovoid-angular, 4-5 mm long, with orange aril.

GENERAL DISTRIBUTION: Central Mexico to Costa Rica, northern Colombia and Venezuela, Lesser Antilles south to Trinidad and Netherlands Antilles.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, the Grenadines!, Grenada!.

COMMON NAMES: Ahicotier diable, sapotillier diable, sapote diable (per *Stehlé & Stehlé 6172*, Martinique).

NOTES: The type collection of *Casearia bonariensis* Boldingh was specified in the 1914 publication cited above and not with the original description.

This description is based, in part, on material from the Netherlands Antilles (Aruba, Bonaire, Curaçao).

TAXA INCERTAE SEDIS

Casearia serrulata Sw. (Fl. Ind. Occid. **2:** 754. 1798) was described on the basis of a specimen from Nevis in the Banks herbarium at BM. The exact collection was not specified, but there is a Masson collection at BM that Sleumer (loc. cit. p. 391) indicated as the holotype. Kiger (loc. cit. p. 456 under *Samyda niviana* Poiret) subsequently designated this same collection as the lectotype of *C. serrulata*, which is probably a more appropriate disposition.

The status of this species has not been firmly established. Kiger considered it as assignable to *Casearia arborea* (Rich.) Urban. Sleumer placed it as a synonym of *C. sylvestris*, but also placed *Samyda niviana*, a new name based on *C. serrulata*, as a synonym of *C. arborea*. Only one of these two choices is allowable and Sleumer therefore made an inadvertent mistake, which Kiger attributes to the placement of *C. serrulata*. The two species can be readily distinguished as follows:

Leaves manifestly serrulate, upper surface glabrous except for puberulous midrib, lower surface gray-tomentulose; ovary pubescent at apex near base of style; stigma solitary, capitate .... *C. arborea*
Leaves subentire to crenate-serrate, essentially glabrous on both surfaces; ovary glabrous throughout; stigmas 3, capitate .... *C. sylvestris*

Unfortunately, we have not seen the type material of *C. serrulata*, but it appears, on the basis of Swartz's description, that Kiger is probably correct in assigning this species as a synonym of *C. arborea*, which therefore would represent the only known record of this species in the Lesser Antilles. Given that the normal range of this species in the West Indies is from Cuba to Puerto Rico, including Jamaica, it is not out of the question that it may have been collected on Nevis. However, it certainly does not exist anywhere in the Lesser Antilles at the present time.

FLACOURTIA Comm. ex L'Hér.

Flacourtia Comm. ex L'Hér., Stirp. Nov. 59. 1786.

Trees or shrubs, often with thorns on young branches and trunk, unarmed when old. Leaves spirally arranged; blades crenulate-serrulate, penninerved, chartaceous to subcoriaceous, epunctate (opaque); stipules absent. Inflorescences short axillary racemes. Flowers unisexual (plants monoecious or dioecious); sepals 4 to 6, slightly connate at base, imbricate, subpersistent; petals absent; receptacular disk fleshy, entire or crenulate; male flowers with stamens 15 to many, free, anthers ellipsoid, rudimentary gynoecium lacking; female flowers with ovary superior, incompletely 4- to 6-locular by false septa, ovules 2 per locule, styles as many as locules, free or connate, stigmas retuse or emarginate. Fruit a berrylike indehiscent drupe with twice as many pyrenes as styles, pyrenes 2-seeded; seeds superposed, obovoid.

TYPE: *Flacourtia ramontchi* L'Her. (= *Flacourtia indica* (Burm. f.) Merr.)

A tropical Old World genus of 15 to 25 species native to Africa and southeast Asia east to Polynesia. Cultivated here and there in the New World, presumably for the edible fruits. For additional information see H. O. Sleumer, Fl. Malesiana **5:** 69-77. 1954.

NOTE: A key is provided for the two species reported in the Lesser Antilles. However, only *F. jangomas* is fully described as we have seen no evidence that *F. indica* occurs in this area. These two species are very similar, especially given the extreme range of variation that exists in *F. indica*. After examining representative specimens from the Old World, it appears as though the two species can be reliably distinguished only on the basis of stylar features.

KEY TO THE SPECIES

Styles connate into a column, ± distinct only at extreme apex..... *F. jangomas*
Styles distinct, or connate only at very base, the style branches usually strongly reflexed.. *F. indica*

Flacourtia indica (Burm. f.) Merr., Interpr. Herb. Amboin. 377. 1917.

Basionym: *Gmelina indica* Burm. f., Fl. Indica 132, *t. 39, fig. 5.* 1768.
Type: Java, collector unknown (G).
Syn.: *Flacourtia ramontchi* L'Her., Stirp. Nov. **3:** 59, *t. 30 & 30b.* 1786. (Type: Madagascar, *Commerson s.n.* (holotype, G).)
Flacourtia sepiaria Roxb., Pl. Coromandel **1:** 48, *t. 68.* 1796. (Type: India, Coromandel coast, *Roxburgh s.n.* (BM, 2 specimens = syntypes?).)

This species was originally reported by Duss from Guadeloupe and Martinique (*Duss 69, 70, 1190, & 3658*). Stehlé and Quentin (1937), and most recently Fournet (1978), also include this species in their floristic treatments of the same islands. We have seen no evidence that this species occurs anywhere in the Lesser Antilles. Unfortunately we have been able to examine only one of the Duss specimens cited above (*3658*), and there is no question that it is *F. jangomas.* This leads us to believe, especially given the general similarity of these two species, that the other Duss collections may also be misidentified.

Flacourtia jangomas (Lour.) Raeusch., Nomencl. Bot. ed. **3:** 390. 1797. FIGURE 135.

Basionym: *Stigmarota jangomas* Lour., Fl. Cochinch. ed. **1**(2): 634. 1790.
Type: Cultivated in Cochin China, *Loureiro s.n.* (holotype, BM).
Syn.: *Flacourtia cataphracta* Roxb. ex Willd., Sp. Pl. **4:** 830. 1806. (Type: "India orientali," *Roxburgh s.n.* (holotype, B-W #18492; IDC 7440. 1344: II. 8, 9, photo!).)

Small tree or large bushy shrub 4-10(-15) m tall; young branches white-speckled by numerous lenticels, older branches and younger portions of trunk commonly with sharp thorns, these simple or branched. Leaves with petioles 3-10 mm long, puberulous, glabrescent; blades narrowly ovate to ovate to ovate-elliptic, 3-10.7 × 1.8-5 cm, base cuneate to rounded, apex acute to acuminate, sometimes abruptly so, glabrous. Inflorescences to 4 cm long, male generally longer than female, few-flowered; rachis puberulous. Flowers white or yellow-green, with pedicels 4-10 mm long, articulate 0.5-2 mm above base, puberulous, ± glabrescent; sepals mostly 4, ovate to suborbiculate, 1-2 mm long, pubescent within, glabrous to ± pubescent without; disk white or yellow; male flowers with numerous stamens to 3.5 mm long, filaments slender, glabrous; female flowers with ovary flask-shaped (including styles), 2.5-3 mm long, styles 4 to 6, connate except at extreme apex, stigmas retuse. Fruits subglobose to globose, 8-15 mm in diameter, often with vertical ridges equal in number with style branches; seeds flattened, ca. 1 mm long.

GENERAL DISTRIBUTION: Originating in the Old World, perhaps in India; apparently unknown in the wild. Cultivated in many tropical countries.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Dominica!, Martinique, St. Lucia!, St. Vincent!, the Grenadines, Grenada!.

COMMON NAMES: Governor's plum, prune-café, prune de chine.

NOTE: The fruits are edible but tart, being used primarily for making jams or preserves.

HOMALIUM Jacq.

Homalium Jacq., Enum. Syst. Pl. 5, 24. 1760.

Trees or shrubs, unarmed. Leaves distichous; blades crenate-serrate, penninerved, chartaceous, epunctate (opaque); stipules minute, caducous. Inflorescences large axillary racemes or panicles, many-flowered. Flowers perfect; calyx tube obconic or turbinate, adnate to lower half of ovary, lobes 5 to 8, persistent; petals present, inserted at throat of calyx tube, as many as, larger than, and alternate with sepals; receptacle with glands opposite each sepal; stamens opposite petals in fascicles of 3 to 7, filaments free, anthers small, ellipsoid; ovary semi-inferior, unilocular with 3 parietal placentae, each with one to few ovules, styles 3, stigma simple or subcapitate. Fruit a capsule, dehiscent from apex by 2 to 6 valves; seeds solitary or few, exarillate.

TYPE: *Homalium racemosum* Jacq.

A pantropical genus of ca. 200 species.

Homalium racemosum Jacq., Enum. Syst. Pl. 24. 1760; Select. Stirp. Amer. Hist. 170, *t. 183, fig. 72.* 1763. FIGURE 137.

Type: Martinique, mouth of the river Capot, *Jacquin s.n.* (no authentic specimen preserved).

Shrub or more often a tree to 15 m tall (rarely more); trunk to 35 cm in diameter; young branches with many pale elliptic lenticels, bark silvery. Leaves with petioles 4-10 mm long, glabrous; blades oblong to elliptic, occasionally oblong-ovate, 6.9-15.4(-17.1) × 3.4-7.3 cm, base cuneate to rounded, apex acute to acuminate, shiny above and beneath, glabrous or rarely with tufts of hair in vein axils beneath. Inflorescences commonly branched (paniculate) below and simple (racemose) above, to 21 cm long including peduncle (3.5-6 cm long); rachis glabrous to more commonly puberulous, even densely so. Flowers white to greenish, malodorous, with pedicels 2-6(-11) cm long, articulate above middle, puberulous; calyx tube turbinate, puberulous, with 6 or 7 lobes, these lanceolate to oblong-ovate, 2.5-3.5 mm long, accrescent to 5 mm in fruit, apex acute, puberulous on both surfaces; petals ovate to broadly ovate, 3.5-5 mm long, puberulous to tomentulose on both surfaces; receptacular glands transversely ellipsoid, gray-puberulous to tomentulose; stamens 3 or 4 (less often 5 or 6) per fascicle, 3-4 mm long, the fascicle ± epipetalous, filaments slender, glabrous; ovary conical, tomentulose to villous, styles to 2 mm long, glabrous. Fruits (not seen) turbinate with persistent calyx, usually 1-or 2-seeded, inner pericarp wall pubescent; seeds oblong-angular, 1.5-2 mm long, brown.

GENERAL DISTRIBUTION: Central America, the West Indies, and South America to eastern Peru and Brazil.

DISTRIBUTION IN LESSER ANTILLES: Antigua, Guadeloupe!, Dominica!, Martinique!.

COMMON NAMES: Acomat, acomat blanc, acomat-franc, acomat-hêtre, bois de hêtre.

NOTE: The heavy wood of this species is used for general construction purposes.

LAETIA Loef. ex L.

Laetia Loef. ex L., Syst. Nat. ed. 10, **2:** 1068, 1074, 1373. 1759, nom. cons.

Shrubs or trees, unarmed. Leaves distichous; blades entire to crenate or serrate, penninerved, membranous to chartaceous, usually with pellucid dots and lines; stipules fugacious. Inflorescences axillary or less often terminal, fasciculate or cymose. Flowers perfect; sepals 4 or 5, imbricate, free or slightly connate at base, ± petaloid, commonly reflexed at anthesis; petals absent; receptacular disk or staminodes lacking; stamens 10 to many, filaments free, often unequal in length, anthers small, ellipsoid to linear; ovary superior, unilocular with 3 parietal placentae, each with few to many ovules, style simple or apically 3-lobed, stigma(s) capitate. Fruit a berry-like capsule, tardily dehiscent into 3 to 6 valves; seeds few to numerous, arillate.

TYPE: *Laetia americana* L.

A tropical genus of 10 species found in southern Mexico, Central America, the Greater Antilles, and South America.

Laetia thamnia L., Pl. Jamaica Pug. 31. 1759. FIGURE 138.

Type: Jamaica, *P. Browne s.n.* (holotype, LINN 680.1).

Shrub or more often a tree to 10 m tall; trunk to 11 cm in diameter, vegetatively glabrous or rarely sparsely puberulous. Leaves with petioles (3-)5-11 mm long; blades oblong to narrowly elliptic to elliptic or rarely oblong-oblanceolate, 3-14.1 × 2.2-5.2 cm, base oblique, cuneate to rounded, apex bluntly acute to acuminate, margin entire to crenulate(-serrulate), pellucid-punctate and -lineate. Inflorescences axillary, few-flowered, dichasial cymes; peduncles 0.6-1.8 cm long, puberulous to glabrous, the remaining axes similarly invested. Flowers white, with pedicels 6-15 mm long, articulate ca. 1 mm above base, or rarely to 5 mm on the longest pedicels; sepals 4, broadly elliptic to obovate or obovate-spatulate, 6-9 mm long, reflexed at anthesis, puberulous on both surfaces, ± glabrescent, caducous; stamens numerous, filaments unequal, 2.5-7 mm long, hirsutulous; ovary broadly ovoid to subglobose, tomentulose, tapering to simple style 1-3 mm long, stigma subcapitate, obscurely 4- or 5-lobed. Fruits ± globose, 2-4 cm in diameter, generally 3- to 5-valved, ferrugineous-tomentulose, pericarp red within; seeds numerous, ± ovoid-ellipsoid, ca. 4 mm long, with orange-yellow aril.

GENERAL DISTRIBUTION: Southern Mexico to Panama, Cuba, Jamaica, and Colombia.

DISTRIBUTION IN LESSER ANTILLES: Martinique!.

COMMON NAME: Pomme chien.

NOTES: The place of publication of this species is often incorrectly cited as Amoen. Acad. **5:** 379, 413. 1760, which is a later reprint of the reference cited above.

This species is apparently very rare on Martinique, having been collected only three times (*Stehlé & Stehlé 6679*, *Stehlé and Blanche 8120*, and *Rollet 1655*). As such, the description provided is based on material examined throughout the range of the species.

PROCKIA P. Browne ex L.

Prockia P. Browne ex L., Syst. Nat. ed. 10, **2:** 1068, 1074, 1372. 1759.

Shrubs or small trees, unarmed. Leaves alternate, spirally arranged; blades serrate, plinerved, often with two basal glands, membranous, opaque; stipules variable in shape, usually large, foliaceous, ± persistent. Inflorescences terminal on lateral branches, racemose, few-flowered. Flowers perfect; sepals 3 (rarely 4), valvate, free, persistent; petals 3, smaller than and alternate with sepals, persistent, or abortive; receptacular disk or staminodes wanting; stamens indefinite, pluriseriate, filaments free, unequal in length, anthers small, subglobose; ovary superior, 3- to 5-locular, ovules numerous on axile placentae, style simple, stigma subcapitate. Fruits baccate, dry and indehiscent, terminated by persistent style; seeds numerous, imbedded in white pulp, exarillate.

TYPE: *Prockia crucis* P. Browne ex L.

A neotropical genus of 2 species, one restricted to Venezuela, the other widespread from Mexico south to Uruguay-northern Argentina, and the West Indies.

Prockia crucis P. Browne ex L., Syst. Nat. ed. 10, **2:** 1074. 1759.
FIGURE 139.

Type: Jamaica, *P. Browne s.n.* (holotype, LINN 690.1).
Syn: *Trilix crucis* (L.) Griseb., Abh. Königl. Ges. Wiss. Göttingen **7:** 165. 1857; Syst. Veg. Karaiben 17. 1857.

Shrub or small tree to 10 m tall; trunk to 10 cm in diameter, branchlets glabrous or rarely hirtellous. Leaves with petioles 0.5-3.1 cm long, glabrous or hirtellous; blades narrowly to broadly ovate, or suborbiculate, 3.4-10.8(-12.4) × 1.7-9 cm, base rounded to more commonly narrowly cordate, usually with 2 glands at or near petiole-blade junction, apex acuminate, margin coarsely serrate, glabrous to puberulous above, glabrous to hirtellous beneath; stipules falcate-lanceolate to -semiovate or suborbiculate, inequilateral, to 15 mm long, margin serrate. Flowers yellow, with pedicels 11-25 mm long, articulate near base, glabrous or hirtellous; sepals ovate or broadly ovate, 4.5-8 mm long, reflexed at anthesis, hirtellous without, tomentellous within; petals 3 or 0, linear to oblong to elliptic, to ca. 3.5 mm long, glabrous or tomentulose; receptacle pubescent; stamens with filaments 4-6 mm long, glabrous; ovary subglobose, 2-2.5 mm long, glabrous to hirtellous, style 3-4 mm long, hirtellous at base, glabrous above, stigma slightly dilated. Fruits globose, 5-7.5 mm in diameter, red becoming black at maturity, glabrous to hirtellous; seeds ellipsoid, ca. 1.5 mm long.

GENERAL DISTRIBUTION: Mexico south to Uruguay-northern Argentina, and the West Indies.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Antigua!, Nevis, Guadeloupe, Dominica!, Martinique, St. Lucia!, St. Vincent!, Grenada!.

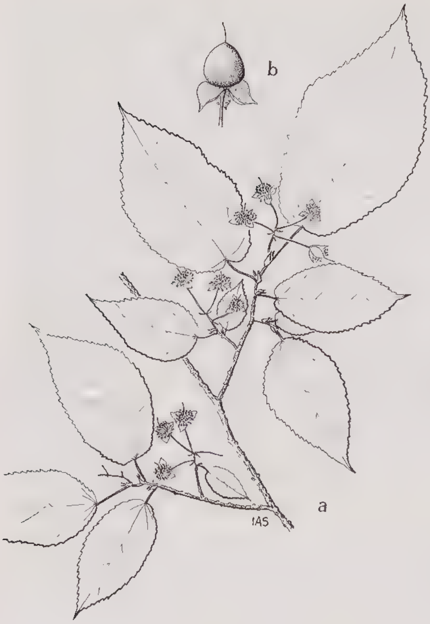
NOTE: A very polymorphic species, especially with respect to the degree of pubescence.

SAMYDA Jacq.

Samyda Jacq., Enum. Syst. Pl. 4, 21. 1760, nom. cons.

Syn.: *Guidonia* Miller, Gard. Dict. abr. ed. 4. 1754, nom. rejic. (Lectotype: Plum., Nov. Pl. Amer. 4, #1. 1703.)

Shrubs or small trees, usually unarmed. Leaves alternate, distichous or spirally arranged; blades entire to serrate, penninerved, chartaceous to coriaceous, pellucid-punctate or -lineate; stipules present, caducous or persistent. Flowers perfect, solitary or 2 or 3 per axil, rarely more; calyx tube cylindrical to campanulate, 4- or 5-lobed, the lobes imbricate, ± unequal; petals absent; staminodes present or absent; stamens 8 to 20, uniseriate, connate into tube (with staminodes if present), this tube adnate to calyx tube near throat, free above, filaments eventually free, anthers ovoid-ellipsoid; ovary superior, unilocular with 3 to 5 parietal, multiovulate placentae, tapering to simple style, stigma capitate, obscurely 3- or 4-lobed. Fruit a capsule, dehiscent from apex by 3 to 5 valves; seeds numerous, arillate.



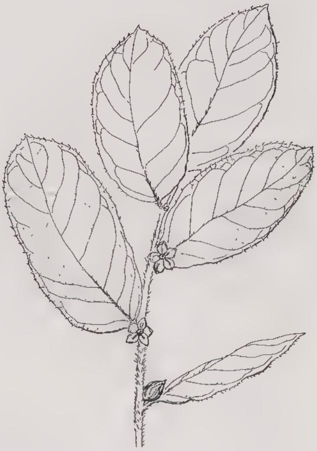


FIGURE 139 (left). *Prockia crucis*: a, flowering branch, × 0.3; b, fruit, × 0.7. FIGURE 140 (right). *Samyda dodecandra*, × 0.3.

LECTOTYPE: *Samyda dodecandra* Jacq., typ. cons.; see Sleumer, Taxon **5:** 194. 1956.

A neotropical genus of 9 species found in Mexico, Central America, and the West Indies. For important nomenclatural information concerning this genus see R. W. Kiger, Taxon **33:** 445-468. 1984.

Samyda dodecandra Jacq., Enum. Syst. Pl. 21. 1760; Select. Stirp. Amer. Hist. 132. 1763. FIGURE 140.

Lectotype: Plum., Pl. Amer. *t. 146, fig. 2.* 1757; see Sleumer, Taxon **5:** 192-194. 1956.
Syn.: *Samyda decandra* Jacq., Enum. Syst. Pl. 21. 1760; Select. Stirp. Amer. Hist. 131. 1763. (Type: St. Martin, anno 1755-1757, *Jacquin s.n.*, not preserved. Neotype: St. Martin, *Arnoldo 3397* (U).)
Samyda serrulata L., Sp. Pl. ed. **2:** 558. 1762, nom. illegit. for *Samyda dodecandra* Jacq.
Samyda rosea Sims, Bot. Mag. **16:** *t. 550.* 1802. (Type: cultivated plant probably introduced from St. Vincent. Lectotype: loc. cit. *t. 550.*)

Shrub or small tree 2-4 m tall; branchlets densely ferrugineous-velutinous. Leaves distichous, with petioles 2-5 mm long, densely ferrugineous-velutinous; blades oblong or elliptic, less often ovate or obovate, 3-11 × 1.9-6.1 cm, base broadly cuneate to rounded or obtuse, often oblique, apex acute to rounded or obtuse, or occasionally retuse, margin finely serrate, venation prominent beneath, densely yellow- to ferrugineous-velutinous above and beneath, ± glabrescent above. Flowers 1 or 2 per axil, with pedicels to 6 mm long, articulate near base, densely ferrugineous-velutinous; calyx 10-14 mm long, green or red and densely pubescent without, glabrous to sparsely pubescent within, tube ca. 1/2 of total calyx length, free lobes normally 5, elliptic to oblong, apex acute or obtuse, white to red within; staminodes absent; stamens 10 to 12, staminal tube 3-4 mm long, ± pubescent without, glabrous within, individual filaments flattened (laminar) except for abruptly constricted filiform segment immediately below anther, free for up to 1.5 mm in length, anthers 1-1.5 mm long; ovary ovoid, velutinous, style glabrate, to ca. 6 mm long. Fruits ovoid-ellipsoid to subglobose, 1.5-3 cm long, orange to red within; seeds obliquely ovoid, 2.5-3.5 mm long, aril yellow.

General distribution: West Indies from Cuba south to Bonaire, Curaçao, and Trinidad.

Distribution in Lesser Antilles: St. Martin!, St. Barts!, Antigua!, St. Eustatius!, St. Kitts!, Nevis, Montserrat!, Guadeloupe, Martinique, St. Vincent.

Common names: Banso, wild guave.

Notes: The floral portion of the description is based, in part, on material from outside the Lesser Antilles.

Jacquin simultaneously described *Samyda decandra* and *Samyda dodecandra*, distinguishing them solely on the basis of stamen number. Although the former name has not been used since Jacquin's publication, it appears as though the first author to unite these two species formally and validly was Sleumer in his treatment of the Flacourtiaceae for Flora Neotropica (1980). He logically chose *S. dodecandra* for this species, and therefore this name has priority over *S. decandra* according to Article 57.2 of the ICBN.

The neotype of *Samyda decandra* was chosen by R. W. Kiger (The genus *Samyda* (Flacourtiaceae). Dissert. Univ. Maryland p. 79. 1972), but never validly published. However, Sleumer (Fl. Neotropica Monogr. **22:** 231. 1980) has accepted (and validly published) this choice of a neotype.

XYLOSMA Forster f.

Xylosma Forster f., Fl. Ins. Austr. 72. 1786, nom. cons.

Syn.: *Myroxylon* Forster & Forster f., Char. Gen. Pl. 125, *t. 63.* 1776, nom. rejic. vs. *Myroxylon* L. f., 1782 (nom. cons.). (Type: Not designated.)
Lightfootia Sw., Prodr. 83. 1788. (Type: *Lightfootia serrata* Sw.)

Shrubs or small trees, trunks and branches armed or not with simple or branched axillary spines. Leaves alternate, spirally arranged; blades entire to serrate, penninerved, chartaceous to coriaceous, epunctate (opaque); exstipulate. Inflorescences axillary racemes or reduced to umbelliform fascicles. Flowers unisexual (plants usually dioecious, rarely polygamous); sepals 4 or 5, imbricate, slightly connate at base, ± persistent; petals absent; receptacular disk extrastaminal, of fleshy lobes or glands; male flowers with 8 or more stamens, filaments free, anthers small, subglobose, rudiment of gynoecium lacking; female flowers without stamens or staminodes, ovary superior, unilocular with 2 or 3 (rarely more), few-ovulate, parietal placentae, style simple to bifid, stigmas dilated and flattened, lobed or not. Fruit a dry indehiscent berry; seeds few, exarillate.

TYPE: *Xylosma orbiculatum* (Forster & Forster f.) Forster f. (*Myroxylon orbiculatum* Forster & Forster f.), typ. cons.

A tropical genus of 95 to 100 species, ca. half of which are found in the New World, the remainder in Asia-Malesia and the Pacific Islands; not found in Africa. A genus sorely in need of a monographer as the specific limits are often formed on the basis of what appear to be rather tenuous vegetative features.

KEY TO THE SPECIES

1. Leaves entire or crenulate-serrulate beyond the middle .... *X. buxifolium*
1. Leaves crenulate-serrulate to serrate from base to apex.
    2. Bracts 1 mm long; stamens 15 to 25 .... *X. martinicense*
    2. Bracts 2-3 mm long; stamens 40 to 45 .... *X. serratum*

Xylosma buxifolium A. Gray *in* Griseb., Pl. Wright. 155. 1860.
FIGURE 141.

Type: Cuba, prope Monte Verde, Cuba Orientali, Jan.-July 1859, *C. Wright 1465* (holotype, GH!; isotypes, G, GOET, K, MO, NY, P, S, US).

Syn.: *Hisingera elegans* D. Clos, Ann. Sci. Nat. Bot. sér. 4, **8:** 224. 1857, non *Xylosma elegans* (Tul.) Triana & Planchon (1862). (Type: Guadeloupe, *Plée s.n.* (holotype, P).)

Xylosma closeanum Triana & Planchon, Ann. Sci. Nat. Bot. sér. 4, **17:** 97. 1862, nom. nov. for *Hisingera elegans* D. Clos.

Myroxylon buxifolium (A. Gray) Krug & Urban, Bot. Jahrb. Syst. **15:** 300. 1892.

Xylosma dussii Urban, Repert. Spec. Nov. Regni Veg. **22:** 89. 1925. (Type: Guadeloupe, Houel-Mont, *Duss 2866* (holotype, B, destroyed; isotypes, F, GH!, M, MO, NY, P).)

Myroxylon dussii (Urban) P. Wilson, Torreya **30:** 13. 1930.

Dioecious shrub or small tree 2-8 m tall; trunk commonly armed with branched spines, branchlets puberulous, soon glabrescent, with or without axillary spines. Leaves with petioles 1-2.5(-4) mm long, puberulous; blades variable as to size and shape, obovate, oblanceolate, elliptic, or ovate, 1.3-5.2 × 0.8-2.7 cm, base cuneate to rounded, apex commonly mucronate, acute

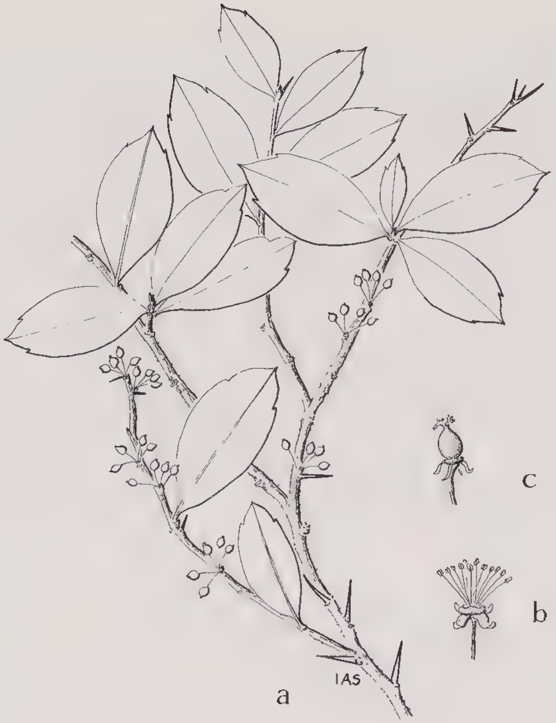


FIGURE 141. *Xylosma buxifolium*: a, fruiting branch, × 0.5; b, staminate flower, × 3.0; c, pistillate flower, × 3.0.

or less often rounded or even emarginate, margin entire or with few crenulate serrations above middle, coriaceous, glabrous. Inflorescences umbellate fascicles, few-flowered. Flowers with pedicels 2-5 mm long, articulate at base, glabrous to puberulous; sepals lanceolate, 1-1.5 mm long, greenish white, ciliolate; receptacular disk lobes ca. 8 in number, more conspicuous in male flowers; stamens 8 to 20, filaments 2-3 mm long; ovary ovoid, glabrous, styles 2, connate at base, ca. 1 mm long, each with subreniform, irregularly lobed stigma. Fruits ovoid to globose or obloid, ca. 4-5 mm in diameter, red becoming black, glabrous; seeds 2 to 4(or 5) per fruit, ovoid but flattened on ventral face, ca. 3 mm long.

GENERAL DISTRIBUTION: Bahamas, Cuba to Puerto Rico, and the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Eustatius, Guadeloupe!, Marie Galante, Martinique!.

COMMON NAMES: Cockspur, attrape-sot.

NOTES: Description is based, in part, on material throughout the range of the species.

The place of publication of this species is commonly cited as Mem. Amer. Acad. Arts ser. 2, **8:** 155. 1860. In actuality this volume was not published until 1861, and Plantae Wrightianae, cited above as the place of first publication, was an exact preprint of the article that appeared the following year in the Memoirs.

Xylosma martinicense (Krug & Urban) Urban, Symb. Antill. **1:** 371. 1899.

Basionym: *Myroxylon martinicense* Krug & Urban, Bot. Jahrb. Syst. **15:** 299. 1892.
Type: Martinique, Camp d'Alma, *Hahn 1404* (lectotype, B, destroyed; isolectotypes, GH!, P (fragm. A!), W).
Syn.: *Xylosma guadalupense* Urban, Repert. Spec. Nov. Regni Veg. **17:** 167. 1921. (Type: Guadeloupe, near Nez-Cassé, *Duss 3924* (holotype, B, destroyed; isotypes, F, MO, NY, US).)

Dioecious, small spreading tree with dense crown, ca. 5 m tall; trunk and possibly old branches beset with clustered (branched) spines, branchlets glabrous to puberulous. Leaves with petioles 3-5 mm long, glabrous or very minutely puberulous; blades ovate to ovate-elliptic or oblong-elliptic or slightly obovate, 4-10 × 1.8-4.2 cm, base cuneate-attenuate, apex acuminate to subcaudate (abruptly acuminate), margin crenulate-serrulate to serrate, chartaceous, glabrous. Inflorescences umbellate fascicles or very short racemes, several-flowered. Flowers with pedicels 2-9 mm long, shortest in male fascicles, longest in fruiting specimens, articulate near middle, puberulous; sepals ovate to suborbiculate, 1-1.5 mm long, subglabrous without, short-pubescent within, ciliate; receptacular disk 8- to 10-lobed; stamens 15 to 25, filaments ca. 2 mm long; ovary ovoid, glabrous, styles 2, distinct or connate at very base, 1 mm long, each with semiorbicular, unlobed stigma. Fruits ovoid to globose, 5-6 mm in diameter, orange-yellow becoming scarlet, glabrous; seeds 3 to 5 per fruit, ovoid-angular, 4-5 mm long.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Martinique!.

COMMON NAMES: Bois-capitaine, bois jaune.

Xylosma serratum (Sw.) Urban, Symb. Antill. **1:** 317. 1899.

Basionym: *Lightfootia serrata* Sw., Prodr. 83. 1788; Fl. Ind. Occid. **2:** 948, *t. 17*, addenda post page 1230. 1800.
Type: Montserrat, Sulfur Mts., *Ryan s.n.* (holotype, S; isotypes, B-W #10264 (IDC 7440. 714: III. 9, photo!), BM, C).
Syn.: *Prockia serrata* (Sw.) Willd., Sp. Pl. **2:** 1213. 1799.
Thiodia serrata (Sw.) Endl. ex Walp., Repert. Bot. Syst. **1:** 204. 1842.
Guidonia serrata (Sw.) O. Kuntze, Revis. Gen. Pl. **1:** 44. 1891.
Myroxylon serrata (Sw.) Krug & Urban, Bot. Jahrb. Syst. **15:** 295. 1892.

Dioecious or occasionally polygamous small tree to ca. 6 m tall, apparently unarmed, branchlets glabrous. Leaves with petioles 5-10 mm long, glabrous; blades ovate to elliptic, 5.6-10.8(-13) × 2.5-5.5 cm, base cuneate-attenuate, apex long-acuminate, margin crenate-serrate, chartaceous, glabrous. Inflorescences umbellate fascicles, often at defoliate nodes, few- to several-flowered. Flowers with pedicels 5-6 mm long, to 10 mm in fruit, articulate below middle, glabrous; sepals ovate, 4-5 mm long, glabrous; receptacular disk with ca. 16 scalelike glands in male flowers, ca. 8 in female flowers; stamens 40 to 45, filaments ca. 3.5 mm long; ovary ovoid, glabrous, styles 4, stigmas 2. Fruits ovoid-subglobose, ca. 6 mm in diameter; seeds 3 to 6 per fruit.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!.

NOTE: Until recently known only from the type collection. A Howard collection (*19733*, A!) from Montserrat, probably at or near to the type location, confirms the existence of this species. However, this collection has flower buds only, and information concerning floral morphology cannot be substantiated. This species is disturbingly similar to *Xylosma martinicense*, perhaps representing no more than a robust variety with larger flowers and more numerous stamens. This matter will be settled only with additional collections of floral and fruiting material.

TURNERACEAE

by Allan J. Bornstein

TURNERACEAE DC., Prodr. **3:** 345. 1828.

Annual or perennial herbs or shrubs, usually pubescent, the hairs simple and/or stellate. Leaves alternate, simple, entire to serrate, biglandular at base or not; stipules present or absent. Flowers solitary and axillary, peduncle distinct or adnate to petiole, bi- or ebracteolate, regular, perfect, homo- or heterostylous; hypanthium tubular, often with 5 glandular protuberances just below insertion of stamens, with or without fringed extrastaminal corona; sepals 5, imbricate; petals 5, unguiculate, convolute, inserted at summit of hypanthium, ephemeral; stamens 5, inserted near base of hypanthium, alternipetalous, filaments distinct, compressed or subulate, anthers oblong, introrse, bithecate, longitudinally dehiscent; ovary superior, unilocular with 3 multiovulate, parietal placentae, styles 3, simple or dichotomously divided, stigmas fringed or brushlike. Fruit a capsule, loculicidally 3-valved; seeds numerous with membranous, unilateral aril, testa foveolate-reticulate, endosperm abundant.

TYPE: *Turnera* L.

A tropical to warm-temperate family of 8 genera and ca. 120 species, native to the Americas, Africa, and the islands of Rodriguez (Mascarene group) and Madagascar; introduced and naturalized in Indomalesia. For additional information see I. Urban, Jahrb. Königl. Bot. Gart. Berlin **2:** 1-152. 1883; and G. K. Brizicky, J. Arnold Arbor. **42:** 204-209. 1961.

KEY TO THE GENERA

Peduncles distinct from petioles, ebracteolate; leaves without basal glands; plants with stellate and simple hairs; styles deeply divided; hypanthium with fimbriate corona .... *Piriqueta*

Peduncles adnate to petiole, bibracteolate; leaves with 2 basal glands; plants with simple hairs only; styles simple; hypanthium without corona........ *Turnera*

PIRIQUETA Aublet

Piriqueta Aublet, Hist. Pl. Guiane **1:** 298. 1775.

Characters as for the family with the following specific features: Pubescence of simple and stellate hairs. Leaf blades eglandular at base; stipules absent. Flowers with peduncles free from associated petiole, ebracteolate; hypanthium with membranous, fringed corona below throat; styles deeply divided.

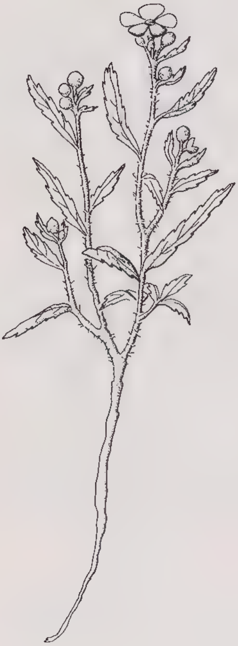
TYPE: *Piriqueta villosa* Aublet.

A genus of ca. 20 to 25 species, primarily of tropical America from Mexico to Brazil-Paraguay; also occurring in Madagascar and South Africa, and extending into warm-temperate regions of the United States (Florida north to Georgia and North Carolina).

Piriqueta cistoides (L.) Griseb., Fl. Brit. W. Indian Is. 298. 1860.
FIGURE 142.

Basionym: *Turnera cistoides* L., Sp. Pl. ed. 2, **1:** 387. 1762.
Type: Not determined.

Erect annual herb to 1 m tall; stems simple or much branched, woody at base, hirsute with long, stiff, light brown hairs and much shorter white hairs. Leaves subsessile to distinctly petiolate, the petioles to 10 mm long, hirsute; blades linear-lanceolate to lanceolate to occasionally ovate-lanceolate, 2.1-11 × 0.4-1.5 cm, base cuneate-obtuse, apex acute to obtuse, margin repand to remotely crenulate or serrulate, stellate-pubescent on both surfaces, often with some long, stiff hairs above and on midrib beneath. Flowers with peduncles 0.4-2.6 cm long, stellate-pubescent and hirsutulous, ebracteolate or very rarely bibracteolate, the bracts minute; hypanthium campanulate, corona obscure; calyx lobes lanceolate, 3-6 mm long, apex acute, stellate-pubescent; petals obovate, to 11 mm long, yellow or yellow-orange; stamens with obscure gland at base, filaments 3-4 mm long, anthers ca. 1 mm long, emarginate at base; ovary ellipsoid, ca. 1.5 mm long, densely hirsutulous, styles divided to beyond middle, 2 mm long, stigmas fimbriate. Fruits ellipsoid to subglobose, 3-6.5 mm long, hirsutulous; seeds straight or slightly curved, oblong-obovoid, 1.5-1.8 mm long, aril as long as or slightly shorter than seed.



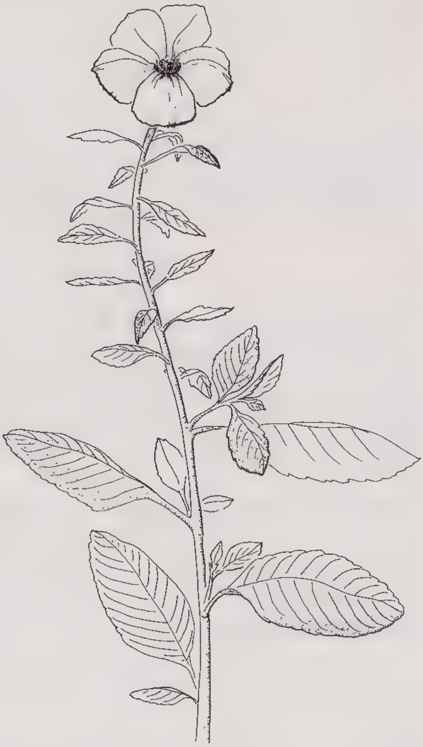


Figure 142 (left). *Piriqueta cistoides*, × 0.5. Figure 143 (right). *Turnera subulata*, × 0.5.

General distribution: Mexico south to Brazil-Paraguay, and the West Indies from Cuba to Trinidad.

Distribution in Lesser Antilles: Antigua, St. Eustatius, Guadeloupe, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

Common name: Bouton d'or.

Note: The author of this name is commonly cited as (L.) Meyer ex Steudel (Nomencl. Bot. ed. 2, **2:** 344, 724. 1841). However, Steudel clearly cites the basionym as "*Turnera cistoides* Hort. (non Lin.)," and therefore this name must be regarded as a nomen nudum. Proper credit for the combination should be attributed to Grisebach.

TURNERA L.

Turnera L., Sp. Pl. **1:** 271. 1753.

Characters as for the family with the following specific features: Pubescence of simple hairs only. Leaf blades with 2 basal glands; stipules present, minute. Flowers with peduncle adnate to petiole, bibracteolate; hypanthium without extrastaminal corona; styles simple.

TYPE: *Turnera ulmifolia* L.

Primarily a neotropical genus of perhaps 70 species ranging from Mexico to Argentina; also occurs in warm-temperate regions of the United States (Texas along the Gulf coast to Florida).

NOTES: The taxonomic status of the numerous varieties of *Turnera ulmifolia* recognized by Urban (1883) has only recently become more clear. It is now apparent that *T. ulmifolia* sensu lato is a polymorphic, polyploid complex of interrelated entities that can be recognized on the basis of differences in morphology, chromosome number, breeding systems, and geographic distribution. For specific information concerning this topic see C. A. Backer, Fl. Malesiana I, **4:** 235-238. 1951; S. C. H. Barrett, Canad. J. Bot. **56:** 1713-1725. 1978; M. M. Arbo & A. Fernandez, Bonplandia **5:** 211-226. 1983; and M. M. Arbo, Candollea **40:** 175-191. 1985. We follow the current trend by recognizing these 'varietal' taxa as distinct species.

All species of *Turnera* have seeds that are apparently distributed by ants (myrmecochory). The ants are attracted to the plant by the paired extrafloral nectaries at the base of the blade and/or the fleshy arils associated with the seeds, which contain fat bodies (elaiosomes) and starch.

KEY TO THE SPECIES

Petals deep yellow throughout; flowers homostylous, self-compatible .... *T. ulmifolia*

Petals cream-colored with dark basal spot (red to purple-black); flowers heterostylous, self-incompatible .... *T. subulata*

Turnera subulata Smith *in* Rees, Cycl. 36. 1817. FIGURE 143.

Type: New Granada (= Colombia), *Mutis 80* (holotype, LINN 384.3).

Syn.: *Turnera trioniflora* Sims, Bot. Mag. **47:** 2106. 1819. (Type: Plant cultivated in Chelsea Garden, originally collected in Brazil.)

Turnera elegans Otto *in* Nees, Horae Phy. Berol. 36. 1820. (Type: Plant cultivated in Horto Regio Berolinensi, "Hab. in Japonia, Brasilia, Insula Trinitatis.")

Turnera ulmifolia L. var. *elegans* (Otto) Urban, Jahrb. Königl. Bot. Gart. Berlin **2:** 139. 1883, nom. illegit. citing *Turnera subulata* Smith.

Herbaceous to subwoody perennial to 75 cm tall, rarely more; stems densely appressed-pubescent. Leaves with petioles 4-15 mm long, densely appressed-pubescent; blades ovate to oblong-ovate or elliptic, to rarely slightly obovate, smaller blades on upper portions of flowering branches ovate-lanceolate to obovate-lanceolate, 1.6-8 × 0.4-3.8 cm, base cuneate, with 2 lateral glands, these discoid with central umbonate protuberance, short-pubescent, apex acute to obtuse or rounded, margin entire at base, dentate-serrate beyond, appressed-pubescent on both surfaces, especially beneath along major veins. Flowers heterostylous, with bracteoles linear-subulate, 9-12 mm long, margin entire, appressed-pubescent; calyx tube 4-6 mm long, lobes lanceolate, 1-1.4 cm long, apex acute to acuminate or caudate, often purple-tinged without, densely appressed-pubescent; corolla cream-colored with red to purple-black center spot, individual petals obovate, 1.7-3 cm long, glabrous; stamens with flattened filaments, ca. 8 mm long in short-styled flowers, ca. 4 mm long in long-styled flowers, anthers 2.5-4 mm long; ovary ovoid, 2.5 mm long, densely appressed-pubescent, styles 4-4.5 mm long in short-styled flowers, 9-10 mm long in long-styled flowers, stigma branches 1-1.5 mm long. Fruits ovoid to subglobose, 3-5 mm long, densely appressed-pubescent; seeds fewer than 20 per capsule, oblong-obovoid, ± curved, ca. 2.5 mm long, aril white, fleshy.

General distribution: Panama, northern South America to Bolivia and Brazil, and the southern islands of the Lesser Antilles; also introduced and now a naturalized weed in India, Malaysia, and Indonesia.

Distribution in Lesser Antilles: St. Lucia!, St. Vincent!, Grenada!, Barbados!.

Common names: Politician's plant, politician's flower.

Notes: According to Arbo & Fernandez (1983), *T. subulata* is a composite species of essentially indistinguishable diploid (2n=10) and autotetraploid (2n=20) races.

The common names refer to the opening of the flowers in the early hours of the day (7:00 to 8:00 a.m.), and their subsequent closing 2 to 4 hours later.

Turnera ulmifolia L., Sp. Pl. **1:** 271. 1753.

Lectotype: Hort. Cliff., *tab. 10.* 1738; see Arbo, 1985.
Syn.: *Turnera angustifolia* Miller, Gard. Dict. ed. 8. 1768. (Type: Sloane, Voy. Jamaica **1:** 202, *pl. 127, fig. 4, 5.* 1707.)
Turnera ulmifolia L. var. *angustifolia* (Miller) Willd., Sp. Pl. **1:** 1503. 1798.

Erect subshrub to 1 m tall; stems appressed pubescent, often densely so on youngest branches, or subglabrous. Leaves often crowded near top of young branches, with petioles 3-15 mm long, appressed pubescent; blades lanceolate to oblong-ovate, 1.3-7.9 × 0.6-2.5 cm, base cuneate, with 2 lateral glands (very rarely 1 or both absent), these discoid with central, umbonate protuberance, glabrous, apex acute, margin subentire to irregularly and coarsely serrate, variably pubescent from subglabrous to densely appressed pubescent. Flowers homostylous, with bracteoles lanceolate or linear-lanceolate, 6-11 mm long, margin ± remotely serrulate, appressed pubescent; calyx tube ca. 5-10 mm long, lobes lanceolate, 8-10 mm long, apex acute to acuminate or caudate, subglabrous to appressed pubescent; corolla deep yellow, individual petals obovate, 1-2 cm long, glabrous; stamens with filaments flattened, 10-13.5 mm long, anthers 3-4 mm long; ovary ovoid, 2.5-3 mm long, appressed pubescent, style 11-13 mm long, stigma branches ca. 2 mm long. Fruits ovoid to subglobose, 6-10 mm long, appressed pubescent; seeds usually > 30 per capsule, oblong-obovoid, ± curved, ca. 2.5 mm long, aril white, fleshy.

GENERAL DISTRIBUTION: Southern Florida, Bermuda, Bahamas, the West Indies, and continental tropical America; introduced and now a naturalized weed in the Old World.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Saba!, St. Eustatius, St. Kitts, Nevis, Guadeloupe, Martinique.

NOTES: Arbo (1985) considers *T. ulmifolia* and *T. angustifolia* to be distinct on the basis of leaf shape (ovate vs. lanceolate), bracteole shape (lanceolate vs. ovate-lanceolate), and the occurrence of extrafloral nectaries (absent vs. present), respectively. After examining available material, it appears as though the first two features are quite variable over the range of the species, whereas the leaf blades almost always possess the two basal, lateral glands. Therefore, unless additional evidence proves otherwise, it seems best to recognize only *T. ulmifolia.* Despite recent advances in our knowledge of the *Turnera ulmifolia* complex, more work needs to be done to clarify further the relationships among the various taxa.

PASSIFLORACEAE

by Allan J. Bornstein

PASSIFLORACEAE A. L. Juss. ex Kunth *in* Humb., Bonpl. et Kunth, Nov. Gen. Sp. **2:** 100 (ed. folio), 126 (ed. quarto). 1817. ('Passifloreae').

Herbaceous or woody vines climbing by axillary unbranched tendrils (modified inflorescences or part thereof). Leaves alternate, simple (rarely compound elsewhere), entire or commonly lobed, often with extrafloral nectaries (glands) on the petiole; stipules small and deciduous or large, foliaceous, and ± persistent. Inflorescences axillary, cymose or reduced to fasciculate or solitary, 1-flowered, bracteate peduncles. Flowers regular, perfect, 5-merous; hypanthium saucer-shaped to tubular; sepals distinct or connate below, imbricate, persistent; petals alternate with sepals, distinct or basally connate, imbricate, occasionally wanting; extrastaminal corona borne on hypanthium, in one to several series of distinct or ± united processes; stamens alternipetalous, hypogynous, free from gynophore or elevated on androgynophore, anthers bithecate, dorsifixed, versatile, dehiscent by longitudinal slits; gynoecium 3-carpellate, ovary superior, borne on elevated gynophore or rarely sessile, unilocular with 3 multiovulate, parietal placentae, styles 3, distinct, each with capitate, clavate, or discoid stigma. Fruit a berry; seeds compressed, arillate, testa foveolate, with abundant endosperm.

TYPE: *Passiflora* L.

A widespread tropical to warm-temperate family of 12 to 16 genera and 600 to 650 species, depending on one's circumscription; found primarily in tropical America and Africa. Only the large genus *Passiflora* is represented in our area.

PASSIFLORA L.

Passiflora L., Sp. Pl. **2:** 955. 1753.

Characters of the family: Inflorescences reduced to solitary or paired, 1-flowered peduncles, or rarely fasciculate. Flowers with hypanthium patelliform, campanulate, funnelform, or cupuliform; sepals membranous or fleshy, often dorsally corniculate or aristate below apex; petals membranous, as long as or shorter than sepals, sometimes wanting; operculum borne within or below corona, membranous, flat or plicate, entire, dentate, or fringed; nectar ring an annular ridge borne within or below operculum, sometimes wanting; limen borne near base of gynophore, annular or cupuliform, sometimes wanting; stamens usually on raised androgynophore, anthers linear to oblong, extrorse at maturity; ovary borne on gynophore, rarely sessile.

LECTOTYPE: *Passiflora incarnata* L.; vide N. L. Britton & A. Brown, Ill. Fl. N. U.S. ed. 2, **2:** 565. 1913.

A genus of ca. 400 species, primarily of the New World tropics (360 species), with the remainder in tropical southeast Asia, Australia, Malaysia, and Polynesia. Many species have been introduced throughout the tropics and subtropics for the attractive flowers and/or edible fruits. For additional information see E. P. Killip, Publ. Field Mus. Nat. Hist., Bot. Ser. **19:** 1-613. 1938.

CULTIVATED, QUESTIONABLE, OR EXCLUDED SPECIES

Passiflora auriculata Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **2:** 104 (ed. folio), 131 (ed. quarto). 1817. This species, native from Nicaragua to northern South America, Bolivia, Brazil, and Trinidad, is known from St. Vincent on the basis of a single collection (*Anderson s.n.*, K, photo at A!). The plant was cultivated in the St. Vincent Botanic Garden, having been obtained by Anderson on his excursion to Guyana in 1791. The species is distinctive for its small paired flowers (2 peduncles/axil), and the 2 auriculate appendages (glands ?) near the base of the petiole. The leaves are simple and unlobed.

Passiflora biflora Lam., Encycl. **3:** 36. 1789. This species has been reported by Grisebach (Fl. Brit W. Indian Is. 293. 1860) as occurring on Dominica and Guadeloupe, and Nicolson (Fl. Dominica unpublished mss.) has also identified a recent collection (*Webster 13379*, A!) as this species. In our opinion *P. biflora* does not occur anywhere in the Lesser Antilles, which is in agreement with Killip (1938) who indicates the distribution as Mexico, Central America, Colombia, Venezuela, and the Bahamas. The Webster collection cited above is clearly *P. andersonii* on the basis of its elongate peduncle (2-5.7 cm) articulate just beneath the flower (vs. 1-1.5 cm long and articulate near to or below the middle for *P. biflora*). Vegetatively these two species are very difficult to distinguish, although *P. biflora* has predominately 2-lobed leaves whereas *P. andersonii* is mostly 3-lobed.

Passiflora coccinea Aublet, Hist. Pl. Guiane **2:** 838, pl. 324. 1775 (including *Passiflora velutina* DC., Prodr. **3:** 327. 1828). This species is native from the Guianas through the Amazon basin into Peru, Bolivia, southern Venezuela and Colombia, and Brazil. Killip (1938) cites a cultivated specimen from Guadeloupe (*Coudreau s.n.*, P), which is the only known record of this taxon in the Lesser Antilles. It is characterized by simple, irregularly serrate- or crenate-margined leaves, and broadly ovate, glandular-margined bracts that completely enclose the flower bud.

Passiflora cyanea Masters *in* C. Martius, Fl. Bras. **13**(1): 570. 1872. This species was reported from Barbados by Gooding et al. (1965) on the basis of a single collection (*Bovell s.n.*, UCWI). It was also cultivated in the St. Vincent Botanic Garden (*Guilding s.n.*, K), having been obtained by Anderson from Trinidad. The plant is native to Trinidad, Tobago, and northern Venezuela, and the Barbados collection represents either a natural extension in range or a possible introduction. We have not seen any recent collections to substantiate its occurrence in the Lesser Antilles. This species is similar to *P. suberosa* in its 3-lobed leaves with entire margins, but differs in its large foliaceous stipules, the presence of petals, a corona of several series (vs. only 2), and its larger fruits (2.5-3 cm in diameter vs. 0.5-1.5 cm).

Passiflora edulis Sims, Bot. Mag. **45:** *pl. 1989.* 1818. This species is apparently native to Brazil and extends naturally into neighboring countries. It is extensively cultivated in other tropical regions, including Mexico, Central America, the West Indies, Australia, New Zealand, and Hawaii. In our area I have seen specimens from Montserrat, Dominica, Martinique, and St. Lucia. The species is quite variable with respect to coloration of the stems and flowers and this has been used taxonomically to recognize several subspecific taxa, of which Fournet (1978) lists *P. edulis* forma *flavicarpa* Degener from Guadeloupe and Martinique. This plant is easily distinguished by its 3-lobed leaves with petioles apically biglandular, the lobes with serrate margins, its 3 involucrate, serrate-margined, foliaceous, persistent bracts, and its multiseriate corona, the outer two series of which are filiform and white with purple banding at the base, the remaining series commonly reduced to minute papillae. The plant is grown as both an ornamental and as a source of juice (from the fruits).

Passiflora luciensis Urban, Symb. Antill. **3:** 324. 1902. This species was described on the basis of two collections from St. Lucia (*Duss 442* and *881* at B, presumably destroyed; photo of *442* at GH!). Killip referred this species to *P. cuneata* Willd., a taxon otherwise restricted to Colombia and Venezuela. In leaf shape these two species are quite similar, but given the variability in this feature throughout the genus, it seems equally likely that *P. luciensis* is more closely related to the *P. andersonii-P. rotundifolia* complex. Unless or until type material is found, this species is best considered as dubious.

Passiflora maliformis L., Sp. Pl. **2:** 956. 1753. This species, apparently native in Venezuela, Colombia and northern Ecuador, is cultivated throughout the West Indies for the pulp obtained from the fruits, which is used to make a grape-flavored drink. It is readily distinguished by the large, broadly ovate, and basally fused bracts (4-6 × 3.5-4.5 cm) that completely envelope the flower bud, and the fruit with a very hard exocarp. Commonly cultivated on Guadeloupe and Martinique where the plant is known as pomme calabas, liane à agouti, and pomme-liane Guadeloupe; also reported from Barbuda, Antigua, Saba, St. Eustatius, and St. Vincent (Anderson, unpubl. Hortus).

Passiflora multiflora L., Sp. Pl. **2:** 956. 1753. A collection at the British Museum from Montserrat (*Ryan s.n.*, anno 1778, photo A!) is apparently this species. It is native from southern Florida through the Bahamas and the Greater Antilles (except Jamaica). No modern collections are known from anywhere in the Lesser Antilles, which leads one to suspect that the meager data accompanying the Ryan collection might be incorrect. It is known that Ryan also spent some time in the Virgin Islands (where this species does occur naturally), and quite possibly this collection was made on either St. Jan or St. John. The species is readily identifiable among Caribbean passifloras by its simple, oblong or oblong-lanceolate leaves and the unusual absence of a gynophore, the ovary therefore being sessile. As the specific epithet denotes, there are several flowers (3 to 6) borne in fascicles in each leaf axil.

Passiflora murucuja L., Sp. Pl. **2:** 957. 1753. This species is cited by Duss (1897) from Martinique. According to Killip (1938) it is restricted to Hispaniola and Puerto Rico, and as such its occurrence in the Lesser Antilles is suspect. Fournet (1978) feels that Duss's description indicates that his collection (*Duss 880*) is possibly *Passiflora vespertilio* L., a species native primarily to northeastern South America (see below). No recent collections corresponding to *P. murucuja* are known. The species has relatively small, bilobed leaves, generally broader than long, with the lobes rounded or obtuse and with or without 2 rows of ocellate glands on the undersurface. The flowers are red to reddish purple with a cupulate hypanthium and a gynophore that is quite elongate relative to the overall size of the flower.

Passiflora serratifolia L., Sp. Pl. **2:** 955. 1753. A native of Mexico and Central America, this species was reported by Masters (*in* C. Martius, Fl. Bras. **13**(1): 563. 1872) as occurring on Martinique. Killip mentions a collection from Martinique at Paris (*Belanger s.n.*, anno 1857-60), but concludes that this represents either a cultivated plant or one in which the locality data are incorrect. Fournet (1978), almost as an afterthought, mentions that this species is cultivated here and there. We have seen no collections of this plant from anywhere in the West Indies.

Passiflora stipulata Aublet, Hist. Pl. Guiane **2:** 830, *pl. 325.* 1775. This species is perhaps native to northern South America (the type specimen is actually a plant cultivated in French Guiana) and frequently cultivated in the tropics or even warm-temperate areas (e.g., California). Fournet (1978) lists this species as being cultivated as an ornamental used in arbors. We have seen no actual collections to substantiate this report.

Passiflora vespertilio L., Sp. Pl. **2:** 957. 1753. Fournet (1978) questionably mentions this species on the basis of a specimen from Martinique so identified in the O.R.S.T.O.M. herbarium in Cayenne. He does not know of any locations for this species on either Martinique or Guadeloupe, and we have seen no specimens from anywhere in the Lesser Antilles. Anderson (unpubl. Hortus) apparently introduced this species to the St. Vincent Botanic Garden from Trinidad.

Passiflora vitifolia Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **2:** 109 (ed. folio), 138 (ed. quarto). 1817. Native from Nicaragua to northern South America (Ecuador, Peru, Colombia, and Venezuela), this species is occasionally cultivated in the West Indies. Known in the Lesser Antilles only on Dominica where it was cultivated at Lisdara Estate (*Hodge 2418*, GH, 2 sheets!). This species is identified on the basis of its deeply 3-lobed leaves, the lobes coarsely and irregularly crenate-serrate, its ovate, glandular, serrate bracts, and its large scarlet flowers. It is quite similar to specimens of *Passiflora quadriglandulosa* Rodsch. with 3-lobed leaves, but can usually be distinguished from that species on the basis of the size and shape of the floral bracts.

Passiflora warmingii Masters *in* C. Martius, Fl. Bras. **13**(1): 591. 1872. This species was listed by Fournet (1978) as originating in Asia, and cultivated since 1935 in various gardens. In actuality this species is native to southwestern Colombia, Brazil, and Paraguay. We have not seen any collections from the Lesser Antilles.

KEY TO THE SPECIES

1. Petioles glandular.
    2. Leaves unlobed.
        3. Stems sharply 4-angled, winged; stipules large, foliaceous .... *P. quadrangularis*
        3. Stems terete, or if angular then not winged; stipules small, setaceous.
            4. Petals absent; bracts absent; corona biseriate; ovary glabrous .... *P. suberosa*
            4. Petals present; bracts linear to ovate, glandular on margin, persistent; corona of 3 to 6 series; ovary pubescent to tomentose.
                5. Leaves entire, coriaceous; petioles biglandular at apex; bracts oblong-ovate; corona of 5 or 6 series; fruits > 5 cm long... *P. laurifolia*
                5. Leaves irregularly and coarsely toothed (or rarely even trilobed); petioles biglandular at base; bracts linear; corona of 3 series; fruits < 5 cm long.......................... *P. quadriglandulosa*
    2. Leaves lobed.
        6. Leaves 5- to 7-lobed; petals present; bracts involucrate .... *P. serrato-digitata*
        6. Leaves 3-lobed; petals absent; bracts absent.............. *P. suberosa*
1. Petioles eglandular.
    7. Stipules and floral bracts pinnatisect........................ *P. foetida*
    7. Stipules setaceous; floral bracts setaceous or absent.

8. Peduncles more than 1-flowered........................ *P. sexflora*
8. Peduncles 1-flowered.
  9. Plants pubescent.
    10. Leaves with ocellate glands beneath, 3-lobed, the lobes ascending or incurved, mostly rounded, truncate to obtuse at base; sepals green with white margin; peduncles bracteate; seeds with rugulose transverse ridges.............................. *P. rotundifolia*
    10. Leaves without glands beneath, principally bilobed, the lobes divergent, acute or obtuse, cordate at base; sepals reddish or greenish, without white margin; peduncles ebracteate; seeds with smooth transverse ridges................................ *P. rubra*
  9. Plants glabrous.
    11. Corona uniseriate; sepals 2.5-3.7 cm long........ *P. stenosepala*
    11. Corona biseriate; sepals 1.2-2.1 cm long......... *P. andersonii*

Passiflora andersonii DC., Prodr. **3:** 326. 1828. FIGURE 144.

Type: St. Lucia, *Anderson s.n.* (holotype, BM, photo A!, GH!).

Plants vegetatively glabrous throughout; stems angular. Leaves with petioles 1.5-4.9(-6.4) cm long, eglandular; blades shallowly 3- or occasionally 2-lobed, transversely elliptic to transversely oblong or suborbiculate in outline, 1.4-9 cm long along midvein, 2.3-10.3 cm long along 2 lateral nerves, 3.3-12.2 cm wide at widest point, base rounded to truncate, apex of each lobe apiculate, margin entire, ocellate beneath between midvein and laterals, the glands arranged in rows; stipules setaceous, 2-3 mm long. Flowers solitary or paired with peduncles 2-5.7 cm long, articulate within 5 mm of apex; bracts setaceous, 1.5-2(-7) mm long, irregularly spaced along peduncle; sepals ovate-lanceolate, 1.2-2.1 cm long, greenish white, glabrous or puberulent; petals oblong-ovate, 6-8 mm long, white to yellowish white; coronal filaments biseriate, white with purple markings, outer series ligulate, ca. 6-10 mm long, dilated above middle, inner series filamentous, ca. 4 mm long, dilated at apex; operculum closely plicate, minutely denticulate; limen annular; stamens with filaments 4-7 mm long, anthers 5-5.5 mm long; ovary globose, glabrous to pubescent, styles ca. 5-7 mm long. Fruits globose, 1-1.5 cm in diameter, glabrous or glabrate, purplish or blue-black when ripe; seeds ellipsoid, ca. 4 mm long, with rugulose transverse ridges.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Patte à canard, pomme-liane grand bois, pomme-liane bâtard.

NOTE: In addition to being confused with *P. biflora* Lam. (see comments under that species), *P. andersonii* has also been occasionally misidentified as *P. rotundifolia*, which can be easily distinguished by its orbiculate leaves and its rather dense indument.

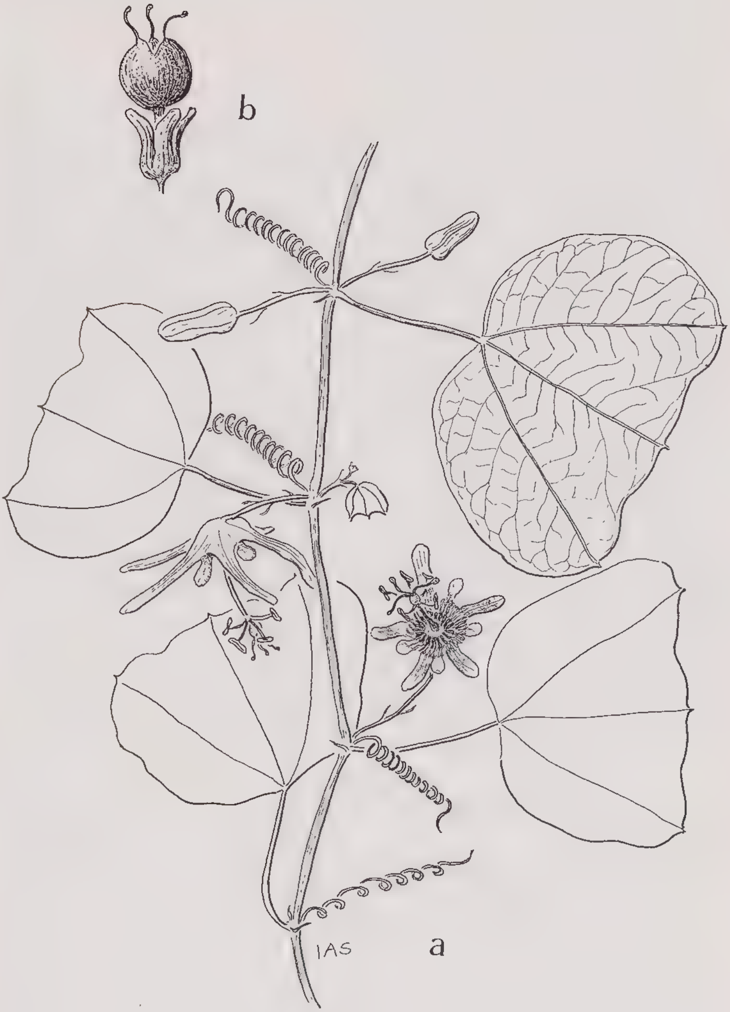


FIGURE 144. *Passiflora andersonii*: a, flowering branch, × 0.6; b, young fruit, × 0.6.

Similarly, this species has often been confused with *P. stenosepala* from which it can be distinguished on the basis of its biseriate corona and smaller flowers (see additional comments under *P. stenosepala*).

Passiflora foetida L., Sp. Pl. **2:** 959. 1753.
Type: See under var. *foetida.*

Plants variously pubescent or completely glabrous; stems terete. Leaves with petioles 1.2-5.5 cm long, eglandular; blades 3-lobed, hastate in outline, the two lateral lobes occasionally greatly reduced, 4.5-13 × 3.5-12.9 cm, base cordate, apex of each lobe acute to acuminate, margin denticulate to subentire, commonly ciliate, nearly glabrous to variously pubescent on both surfaces; stipules subfoliaceous, deeply divided into filiform or pinnatisect segments, the ultimate divisions gland-tipped. Flowers solitary with peduncles 2.4-6.7 cm long; bracts 3, involucrate, ca. 2.5-3.5 cm long, finely and prominently 2- or 3-pinnatisect, the ultimate divisions filiform and gland-tipped, glabrous or hirsute; sepals oblong-ovate to narrowly triangular, ca. 2-2.5 cm long, corniculate, the awn 4-6 mm long, greenish; petals oblong to oblong-ovate, slightly shorter to equal in length to sepals, white; coronal filaments multiseriate, outer two series filiform to ligulate, 8-10 mm long, blue-purple, remaining series much smaller, ca. 1 mm long, sometimes blue-tinged; operculum flat, fringed at apex; limen conspicuous, cupuliform; stamens with filaments 4-6 mm long, anthers 4-5 mm long; ovary ovoid, glabrous to hirsute, styles 3-5 mm long. Fruits globose, papery when dry, 1.5-2.5 cm in diameter, yellow, orange, or red; seeds oblong-ovoid, 4-5 mm long, truncate-cuneiform at both ends, apex commonly tridentate, coarsely foveolate-reticulate on both surfaces.

In our area 3 varieties (of the 37 proposed by Killip, 1938) have been reported, only one of which is very common.

KEY TO THE VARIETIES

1. Ovary, sepals, and bracts glabrous; stems, petioles, leaf blades, and tendrils sparsely long-hirsute, the hairs 2-3 mm long; segments of bracts closely interwoven . . . . var. *hispida*
1. Ovary, sepals, and bracts densely hirsute; stems, petioles, leaf blades, and tendrils densely hirsute or pilosulous, the hairs to 1.5 mm long; segments of bracts loosely or not at all interwoven.
   2. Stems, petioles, leaf blades, and tendrils hirsute, the hairs ca. 1.5 mm long; fruits sparsely hirsute . . . . var. *foetida*
   2. Stems, petioles, leaf blades, and tendrils softly and densely pilosulous, the hairs < 1 mm long; fruits densely pilosulous to hirsute . . . . var. *gossypifolia*

Passiflora foetida L. var. **foetida.**

Lectotype: LINN 1070.24.

Characters as for the species but the plants densely hirsute throughout (stems, petioles, leaf blades, tendrils, peduncles, bracts, sepals, ovary), the hairs generally 1-1.5 mm long. Floral bracts not interwoven. Fruits sparsely hirsute to glabrate.

GENERAL DISTRIBUTION: Puerto Rico, Jamaica, Trinidad, Tobago, and South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!.

NOTE: The distinction between var. *foetida* and var. *gossypifolia* seems rather tenuous. It is based on the degree of pubescence and the length of the hairs, which in their extreme forms might be readily separable, but there appear to be numerous intermediates that cloud the picture considerably. This situation needs to be reexamined in detail, which is undoubtedly true for *P. foetida* in general as I seriously question the validity of the 37 varieties recognized by Killip.

Passiflora foetida L. var. **gossypifolia** (Ham.) Masters, Trans. Linn. Soc. London **27:** 631. 1871.

Basionym: *Passiflora gossypifolia* Ham., Prodr. Pl. Ind. Occid. 48. 1825.

Type: Dominican Republic, in 1802, *Poiteau s.n.* (holotype, P; isotypes, B, presumably destroyed and G); this information follows that of Killip (1938).

Similar to var. *foetida* but the pubescence very densely and softly pilosulous, the hairs typically < 1 mm long. Fruits sparsely to densely pilosulous to hirsute.

GENERAL DISTRIBUTION: Texas, Mexico through Central America to western South America, Cuba, and Hispaniola.

DISTRIBUTION IN LESSER ANTILLES: Martinique (fide Killip, 1938).

NOTE: I have not seen any material of this variety from the Lesser Antilles. Given the similarity of this taxon to var. *foetida*, the identification of the single collection cited by Killip (*Plée s.n.*, P) is questioned.

Passiflora foetida L. var. **hispida** (Triana & Planchon) Killip *in* Gleason, Bull. Torrey Bot. Club **58:** 408. 1931.

Basionym: *Passiflora hispida* DC. ex Triana & Planchon, Ann. Sci. Nat. Bot. sér. 5, **17:** 172. 1873.

Type: Several syntype collections cited; Killip (1938) lists Brazil, collector unknown (holotype, P).

Characters as for the species but the plant vegetatively long-hirsute, sparsely so, the hairs 2-3 mm long. Floral bracts with closely interwoven segments, the divisions glabrous; sepals and ovary glabrous. Fruits glabrous.

GENERAL DISTRIBUTION: West Indies (excluding Hispaniola) and northern South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, Antigua, Saba!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados.

COMMON NAMES: Love-in-a-mist, pop-pop, marie goujot, marie goucha, mariguja, merekuia, marie-gougeat, maribouya, le meku, pomme-liane collant.

NOTE: By far the most common form of *Passiflora foetida* in our area, easily distinguished by the type, degree, and location of pubescence.

Passiflora laurifolia L., Sp. Pl. **2:** 956. 1753.

Lectotype: Surinam, Merian, Metam. Insect. Surinam. 21, *t. 21.* 1705; see Killip, 1938.

Plants vegetatively glabrous; stems terete. Leaves with petioles 0.7-2.5 cm long, biglandular just below apex; blades simple, oblong or oblong-ovate, 5.7-12.5(-17.2) × 3.7-8.3 cm, base truncate to emarginate, apex subacute to rounded, mucronulate, margin entire, coriaceous; stipules linear, 8-10 mm long, gland-tipped. Flowers solitary, with peduncles 1.5-3.1 cm long; bracts foliaceous, involucrate, ovate-elliptic, to 4.8 cm long, margin glandular-serrate toward apex, puberulent on both surfaces; sepals 3-4 cm long, corniculate, the awns ca. 2-3 mm long, pale green and puberulent without, red-purple within; petals similar to sepals only slightly smaller, cream with numerous lavender to red maculations within; coronal filaments multiseriate, outer series ligulate, to ca. 2 cm long, second series ligulate, ca. 3-4 cm long, both of these series banded blue to purple and white, innermost 3 or 4 series greatly reduced, 1-1.5 mm long; operculum horizontally oriented, flat, denticulate at apex; limen cupuliform; stamens with filaments 5-6 mm long, anthers 7-8(-9) mm long; ovary ovoid, densely short-pubescent, styles 4-9 mm long. Fruits ovoid, to 6.5 cm long, yellow; seeds obcordate, 5-6 mm long, foveolate-reticulate.

GENERAL DISTRIBUTION: West Indies and northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts, Barbuda, Antigua, Saba, St. Eustatius!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados.

COMMON NAMES: Pomme de liane, pomme liana, ponm dilyenn, water melon, water lemon, wild passion flower, bell apple.

Passiflora quadrangularis L., Syst. Nat. ed. 10, **2:** 1248. 1759.

Type: Jamaica, P. Browne, Civ. Nat. Hist. Jamaica 327, no. 2. 1756. (= LINN 1070.4?).

Plants glabrous throughout; stems thick, 4-angled, the angles winged. Leaves with petioles 1.8-5.3 cm long, with 3 pairs of glands; blades simple, broadly ovate to ovate-oblong, 10.7-18.7 × 7.5-14.9 cm, base rounded to subtruncate, apex abruptly acuminate, margin entire, penninerved with 10 to 12 pairs of lateral nerves; stipules foliaceous, ovate, 2.8-4.5 × 1.8-3 cm, base cuneate, apex acute to acuminate, margin entire. Flowers solitary with peduncles to 5 cm long; bracts 3, foliaceous, involucrate, ovate, to ca. 4 cm long, entire to serrate toward base, yellow-green; sepals triangular-ovate, 3-4 cm long, green without, white to pink or violet within; petals similar to sepals; coronal filaments 5-ranked, outer 2 series filamentous, 5-6.5 cm long, banded red-purple and white at base, blue at middle, mottled pinkish blue toward apex, third and fourth series greatly reduced, ca. 1 mm long, red-purple, innermost series unequally divided, 5-6 mm long, the segments ligulate to filamentous; operculum 4-5 mm high, flat, denticulate to fringed at apex; limen annular; stamens with filaments ca. 8 mm long, anthers 8 mm long; ovary ovoid, styles ca. 9-12 mm long. Fruits not seen but reported to be as large as 30 cm long and 15 cm wide, yellow-green when ripe; seeds obcordate to suborbiculate, 7-10 mm long, strongly flattened and reticulate at center of each face.

GENERAL DISTRIBUTION: Throughout the neotropics, often cultivated; occurring in the Old World tropics as well.

DISTRIBUTION IN LESSER ANTILLES: Saba, St. Eustatius, Guadeloupe!, Dominica!, Martinique!, St. Vincent, Barbados.

COMMON NAMES: Barbadine, granadilla.

Passiflora quadriglandulosa Rodsch., Med. Bem. Kol. Río Essequebo 77. 1794 [1796].

Type: Guyana, Arrowbisch, *Rodschied s.n.* (holotype, GOET, photo, A!).

Plants glabrous or more commonly variously pubescent; stems terete, woody at base. Leaves with petioles 0.6-2.2 cm long, biglandular at very base; blades simple (or 3-lobed elsewhere), oblong or oblong-lanceolate, 5.4-12 × 2.1-5.4 cm, base rounded, apex acuminate, margin coarsely and irregularly dentate, sparsely puberulent to pubescent along veins above, pubescent beneath; stipules setaceous, 3-5 mm long. Flowers solitary with peduncles 3.2-5.5 cm long, sparsely puberulent to pubescent; bracts 3, linear-lanceolate, 6-9 mm long, apex acuminate, glandular-serrate, the glands progressively smaller from base to apex, sparsely puberulent; sepals oblong-lanceolate, 5-6.2 cm long, carinate, corniculate, the awn 2-6 mm long, bright red, pubescent; petals similar to sepals but lacking keel, awn, and indument; coronal filaments 3-ranked, outer two series filamentous to base, 1.5-2 cm long, banded red and white except for upper third that is solid red, innermost series filamentous only in upper third, fused below into tubular red membrane, the filaments white; operculum ca. 3 mm high, flat, filamentous at apex; limen annular to short-cupuliform; stamens with filaments 8-9 mm long, anthers 7-8 mm long; ovary ovoid, pubescent-tomentulose, styles 6-7 mm long. Fruits ovoid, to ca. 5 cm long, green mottled with white; seeds obovoid, strongly flattened, 6 mm long, foveolate-reticulate on both surfaces.

GENERAL DISTRIBUTION: Trinidad, Guyana, Venezuela, Colombia, and the Amazon basin of Peru, Brazil, and Bolivia.

DISTRIBUTION IN LESSER ANTILLES: Martinique, Grenada!, where perhaps introduced and now naturalized.

Passiflora rotundifolia L., Sp. Pl. **2:** 957. 1753.

Type: "America australiori," not designated; based on Plum., Nov. Pl. Amer. 138, *fig. 1.* 1703 and Barrelier, Pl. Galliam, praef. 1, titul. *fig. 2.* 1714. See Killip (1938).

Plants pilose-pubescent to tomentose nearly throughout; stems angular. Leaves with petioles 1.2-3.4 cm long, eglandular; blades slightly 3-lobed at apex, suborbiculate in outline, 3.8-12 × 3.6-13.3 cm, base rounded to subtruncate, apex of each lobe rounded, mucronulate, margin entire, 3-nerved, ocellate beneath between midvein and laterals, the glands arranged in rows, pilosulous and commonly glabrescent above, pilosulous to densely tomentose beneath; stipules setaceous, 2-3 mm long, tomentose to glabrate. Flowers commonly borne in pairs with peduncles 1.6-4.9 cm long, pilosulous to tomentose; bracts 3, setaceous, to ca. 5 mm long; sepals lanceolate, 1.1-2 cm long, green and puberulent to pubescent without with white margins, white within; petals linear-lanceolate, 5-10 mm long, white; coronal filaments biseriate, outer series ligulate-filiform, ca. 4-5 mm long, white, inner series filiform, ca. 3-4 mm long, green; operculum plicate, margin denticulate; limen annular; stamens with filaments 5-7 mm long, anthers 2.5-4 mm long; ovary ovoid, densely pilose, styles 3-6 mm long. Fruits ovoid to subglobose, to 1.5 cm long, green, pilose to glabrescent; seeds obovoid, 3 mm long, with rugulose transverse ridges.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!.

COMMON NAMES: Liane à l'encre, patte à canard, pomme-liane-bâtard.

Passiflora rubra L., Sp. Pl. **2:** 956. 1753.

Lectotype: Jamaica, *P. Browne s.n.* (LINN 1070.8); designated by Killip, 1938.

Plants pilose-pubescent to tomentose throughout, the pubescence grayish in color; stems 3- to 5-angled. Leaves with petioles 0.8-4.8 cm long, eglandular; blades typically bilobed, the lobes divergent, or occasionally with a third central lobe, 2-8.6 cm long along midvein, 2.7-13 cm long along 2 lateral veins, 4.3-12.5 cm wide at approximate center of blade, base subcordate to cordate, apex of lateral lobes acute or less often obtuse, central lobe generally reduced to a cusp, margin entire, eglandular; stipules setaceous, 3-7 mm long. Flowers usually solitary with peduncles 1-4(-7.8) cm long, articulate 2-3 mm below apex, the portion above articulation glabrous; bracts absent; sepals linear-lanceolate, 1.5-2.7 cm long, green or red and pilose without with 3 conspicuous nerves, white and glabrous within; petals linear, to 1.7 cm long, white; coronal filaments uni- or biseriate, outer series ligulate-filiform, 10-13 mm long, purplish proximally, green or white distally, inner series, if present, filiform, 1-2 mm long; operculum flat or obscurely plicate, ca. 2 mm high; limen subcupuliform; stamens with filaments ca. 4-5 mm long, anthers 3-4 mm long; ovary ovoid, densely pilose to hirsute, styles 3-5 mm long. Fruits ovoid or obovoid, 1.5-3 cm long, reddish, pilose; seeds ovoid to obovoid, ca. 3 mm long, with smooth transverse ridges.

GENERAL DISTRIBUTION: Bahamas through the West Indies to northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Antigua!, Saba!, St. Eustatius, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Passion flower, pomme de liane zombie, trois quarts, pomme à rats, pomme-liane-bâtard, pomme-liane rouge, patte à canard, snakeberry vine.

Passiflora serratodigitata L., Sp. Pl. **2:** 960. 1753.

Type: Martinique, not designated.
Syn.: *Passiflora serrata* L., Syst. Nat. ed. 10, **2:** 1248. 1759. (Type: Not specified.)
Passiflora digitata L., Sp. Pl. ed. 2, **2:** 1360. 1763, nom. illegit. for *Passiflora serratodigitata* L.

Plants glabrous throughout except for floral bracts; stems terete. Leaves with petioles 4.3-13.5 cm long, quadriglandular, the glands clavate to ligulate, 1.5-3 mm long, 2 borne at petiole-blade junction and 2 near to middle; blades palmately 5- to 7-lobed to below middle, to 15 × 20 cm, base subcordate to cordate, lobes oblanceolate to oblong-obovate, apex acute to abruptly acuminate, margin serrulate; stipules linear-subulate, to 1.7 cm long, obscurely glandular-serrulate. Flowers solitary with peduncles to 5.7 cm long; bracts 3, involucrate, ovate to ovate-lanceolate, 3-5.5 cm long, united to ca. 1/2 their length, margin short-tomentose, green with red veins and/or maculations, puberulent without, glabrous within; sepals lanceolate or oblong-lanceolate, 5-6 cm long, the basal 2+ cm fused to form a funnelform hypanthium with several series of short filaments (coronal remnants?) borne within near base, greenish white without, white or blue-tinged within; petals oblong, slightly shorter than sepals, blue-pink; coronal filaments in several series, outer 2 series filamentous, banded white and purple proximally, solid blue-purple distally, with outermost filaments to 2.5 cm long, next innermost to 3.5 cm long, remaining series reduced to papillae; operculum flat, filamentous at apex; limen annular; stamens with filaments ca. 5 mm long, anthers 9-10 mm long; ovary ovoid, glabrous, styles 3-4 mm long. Fruits globose, to ca. 6 cm in diameter, pericarp brittle; seeds ovoid-ellipsoid, 5-6 mm long, foveolate-reticulate.

GENERAL DISTRIBUTION: Dominican Republic, Puerto Rico, Lesser Antilles, Trinidad, Tobago, the Guianas, Brazil, Peru, and Bolivia.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Pomme à agouti, pomme-calebasse, pomme-liane-manicou, feuille carapate, ponm dileynn, pomme de lian.

Passiflora sexflora A. L. Juss., Ann. Mus. Natl. Hist. Nat. **6:** 110, *pl. 37, fig. 2.* 1805.

Type: Dominican Republic, *Poiteau s.n.* (holotype, P; isotype, G).

Plants densely pilose-pubescent to tomentose throughout; stems angular. Leaves with petioles 1-1.7 cm long, eglandular; blades 2- or 3-lobed, the middle lobe generally shorter than two divergent lateral lobes, 2.8-4.2 cm long along midvein, 3.7-5.6 cm long along lateral veins, 4.2-6.9 cm wide at approximate center of blade, base truncate to subcordate, apex of lateral lobes rounded to acute, mucronulate, of central lobe obtuse, emarginate, mucronulate, margin entire, eglandular, hirsutulous above, pilose beneath; stipules linear-subulate, 3.5-4.5 mm long. Flowers fasciculate (racemose?) with 2 to several flowers per peduncle, the peduncles 2 per axil; bracts and bractlets linear-lanceolate, to 6 mm long, often irregularly lobed; sepals oblong-lanceolate, 8-10 mm long, white, pilosulous without, glabrous within; petals oblong-lanceolate, 6-7 mm long; coronal filaments biseriate, outer series ca. 6 mm long, red-purple proximally, white distally, inner series ca. 2-3 mm long, red-purple throughout; operculum plicate, ca. 1 mm high, margins fimbrillate, lavender; limen annular; stamens with filaments ca. 3 mm long, anthers 2 mm long; ovary globose, densely pubescent, styles 3 mm long. Fruits globose, to 10 mm in diameter, pubescent; seeds ovoid-ellipsoid, 2 mm long, with rugulose transverse ridges.

GENERAL DISTRIBUTION: Florida, Greater Antilles, Mexico, Central America, Ecuador, and Colombia.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Kitts.

NOTE: Known from our area on the basis of a single collection (*Howard 18158*, A!, NY!), which apparently represents a natural extension in range from the Greater Antilles.

Passiflora stenosepala Killip, Publ. Field Mus. Nat. Hist., Bot. Ser. **19:** 145. 1938.

Type: Dominica, *Imray 270* (holotype, K, photo A!; holotype fragment, A!; isotype, B, presumably destroyed).

Syn.: Passiflora swartzii Masters *in* C. Martius, Fl. Bras. **13**(1): 556. 1872, as to description only.

Plants glabrous throughout except ovary; stems angular. Leaves with petioles 2.1-4.7 cm long, eglandular; blades transversely oblong-ellipsoid to very broadly ovate, shallowly 3-lobed or the central lobe reduced to a cusp, 2.2-5.9 cm long along midvein, 2.8-6.2 cm long along lateral veins, 4.4-8.6 cm wide at widest point, base rounded to truncate or subcordate, apex of lateral lobes rounded or obtuse, emarginate, mucronulate, margin entire, ocellate beneath between midvein and laterals, the glands arranged in rows; stipules setaceous, 2-3 mm long. Flowers solitary or paired with peduncles to 3 cm long, articulate within 4 mm of apex; bracts setaceous, 1.5-2.5 mm long, irregularly spaced along peduncle; sepals linear to linear-lanceolate, 2.5-3.7 cm long, white with red streaks without; petals linear, 1.5-2 cm long, white; coronal filaments uniseriate, 4-5 mm long, deep purple (yellow-green at apex?); operculum plicate, ca. 2 mm high, minutely denticulate; limen annular; stamens with filaments 5-8 mm long, anthers ca. 5 mm long; ovary ovoid, pilose, styles 5-8 mm long. Fruits ovoid-subglobose, to 1.2 cm long; seeds ovoid-ellipsoid, ca. 3 mm long, with rugulose transverse ridges.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, St. Vincent!.

NOTE: This species is closely related to *Passiflora andersonii* and in sterile or fruiting condition it is virtually impossible to distinguish between them. *P. andersonii* does tend to have the two lateral lobes more divergent with a more acute apex than *P. stenosepala* (and on this basis I have annotated some sterile specimens from Guadeloupe and St. Vincent as *P. stenosepala* that were previously assigned to *P. andersonii*), but given the extreme variability with respect to leaf shape in this complex it is not a reliable character upon which to base a distinction. In flower these species are readily separable on the basis of the size of the sepals and the number of series of coronal filaments (see key for details).

Passiflora suberosa L., Sp. Pl. **2:** 958. 1753.

Lectotype: Dominica, probably Hispaniola, collector unknown (LINN 1070.21); see Wijnands, The Botany of the Commelins, 1983, p. 171.

Syn.: *Passiflora hirsuta* L., Sp. Pl. **2:** 958. 1753. (Type: Not designated.)

Passiflora minima L., Sp. Pl. **2:** 959. 1753. (Type: LINN 1070.20; see Wijnands, loc. cit.)

Passiflora pallida L., Sp. Pl. **2:** 955. 1753. (Type: Not designated.)

Passiflora hederacea Cav., Diss. **10:** 448. 1790. (Type: Antilles, not specified.)

Passiflora peltata Cav., Diss. **10:** 447, pl. 274. 1790. (Type: Antilles, *Surian 123* (holotype, P).)

Passiflora villosa Macfad., Fl. Jamaica **2:** 151. 1837, nom. invalid., non Vell. Conc. (1827).

Passiflora kohautiana C. Presl, Abh. Königl. Böhm Ges. Wiss. ser. 5, **3:** 502. 1845. (Type: Martinique, *Kohaut s.n.* (holotype, PRC).)

Passiflora lineariloba Hook. f., Trans. Linn. Soc. London **20:** 222. 1851. (Type: Galapagos, James Island, *Scouler & Douglas s.n.* (holotype, K).)

Passiflora suberosa L. var. *hederacea* (Cav.) Masters, Trans. Linn. Soc. London **27:** 630. 1871.

Passiflora suberosa L. var. *hirsuta* (L.) Masters, Trans. Linn. Soc. London **27:** 630. 1871.

Passiflora suberosa L. var. *minima* (L.) Masters, Trans. Linn. Soc. London **27:** 630. 1871.

Passiflora suberosa L. var. *pallida* (L.) Masters, Trans. Linn. Soc. London **27:** 630. 1871.

Passiflora suberosa L. var. *lineariloba* (Hook. f.) Masters *in* C. Martius, Fl. Bras. **13**(1): 579. 1872.

Passiflora calliaquatica E. H. Krause, Beih. Bot. Centralbl. **32**(2): 340. 1914. (Type: St. Vincent, between Kingstown and Calliaqua, *E. H. Krause 15718* (holotype, B, extant according to Stafleu & Cowan, Tax. Lit. vol. 2, 1979).)

Plants glabrous to variously pubescent; stems terete. Leaves with petioles 0.4-6.1 cm long, biglandular, the glands sessile or stipitate, crateriform, borne variously along petioles but most commonly beyond middle; blades extremely variable in size and shape, even on a single plant, from simple and ovate to most often (at least in Lesser Antilles) 3-lobed and hastate in outline (the lobes linear to broadly ovate, erect or widely divergent to almost 180°), 2-14.2 cm long, base rounded to truncate or peltate, apex acute in simple leaves, acute or obtuse in lobed leaves, margin entire, rarely ocellate beneath; stipules linear-subulate, 3-9 mm long. Flowers solitary or paired with peduncles slender, to 3.9 cm long, articulate at or above middle; bracts absent; sepals oblong-lanceolate, 5-20 mm long, yellow-green to cream-colored; petals absent; coronal filaments biseriate, outer series 2-6.5 mm long, recurved, yellow at apex, white in middle, red-purple at base, inner series ca. 0.5-4.5 mm long; operculum plicate, 1-2 mm high, margin fimbrillate; limen annular; stamens with filaments 2-6 mm long, anthers 1.5-3 mm long; ovary ovoid to subglobose, glabrous, styles 2-6 mm long. Fruits ovoid to globose, 0.5-1.5 cm in diameter, dark-purple to black; seeds curved-ellipsoid, 3-4 mm long, tapered at both ends, coarsely foveolate-reticulate.

GENERAL DISTRIBUTION: Throughout tropical America including Florida and Texas; introduced in the Old World tropics.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts!, Barbuda, Antigua!, Saba!, St. Eustatius!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Pomme-liane-hallier, pomme-liane-bâtard, pomme-liane-z'oiseau, pomme-liane-razier, liane à couleuvre, passion flower, wild water-lemon.

CARICACEAE

by Allan J. Bornstein

CARICACEAE Dumort., Anal. Fam. Pl. 37, 42. 1829.

Small, soft-stemmed, generally unbranched trees with milky latex and a terminal crown of leaves. Leaves alternate, long-petiolate; blades large, palmately lobed (in our area); exstipulate. Inflorescences axillary cymes, loose and paniculiform (male) or short and few-flowered (female). Flowers regular, unisexual (plants then mostly dioecious) or perfect; calyx small, 5-lobed; corolla of 5 petals, united to form an elongate slender tube in staminate flowers, or almost completely free in pistillate flowers, convolute or valvate; stamens 10 (or only 5 in some perfect flowers) or absent in pistillate flowers, diplostemonous, filaments adnate to corolla, distinct, anthers bilocular, introrse, longitudinally dehiscent; gynoecium of 5 fused carpels, rudimentary in staminate flowers, ovary superior, unilocular, with 5 multiovulate, intrusive parietal placentae, or incompletely 5-locular, style short or nearly wanting, stigmas 5, entire or fimbriate. Fruit a large berry, melonlike; seeds numerous, endosperm fleshy.

TYPE: *Carica* L.

A tropical and subtropical family of 4 genera and approximately 30 species; one genus native to Africa, the remainder in the Americas. The popular *Carica papaya* is cultivated throughout the tropical regions of the world. For additional information see V. M. Badillo, Monografia de la familia Caricaceae (1971) and N. G. Miller, J. Arnold Arbor. **63:** 411-427. 1982.

CARICA L.

Carica L., Sp. Pl. **2:** 1036. 1753.

Characters of the family.

LECTOTYPE: *Carica papaya* L.; vide L., Gen. Pl. ed. **5:** 458. 1754; N. L. Britton, Fl. Bermuda 250. 1918.

Primarily a tropical genus of 21 species ranging naturally from Mexico to northern Argentina; also occurring in Florida.

Carica papaya L., Sp. Pl. **2:** 1036. 1753. FIGURE 145.

Type: "Habitat in Indiis," Hort. Cliff. 461 (BM).

Usually dioecious, unbranched trees (or treelike herbs) to 6 m tall; stems succulent, hollow, with conspicuous leaf scars, to 20 cm in diameter. Leaves with hollow petioles, 3-10 dm long; blades palmately lobed, suborbiculate in outline, 2-5 dm in diameter, lobes commonly 7 (to 9 or 11), each pinnatifid or basal ones entire, apex acute to acuminate. Male inflorescences with many flowers grouped in cymose clusters, to 50 cm long; peduncles to 21 cm long, axes glabrous to occasionally puberulent; flowers with calyx 1-1.5 mm long, lobes ovate to triangular, 0.5-1 mm long, apex obtuse to acute, ± glabrous; corolla salverform, 2.2-4 cm long, tube 1-2.4 cm long, lobes oblong, strongly convolute, 1.1-1.8 cm long, cream-white to yellow; superior stamens with filaments 3-4 mm long, densely pilose, anthers oblong, ca. 2 mm long, connective not expanded, inferior stamens with filaments ca. 0.5 mm long, pilose, anthers oblong, 2.5-3 mm long, with connective prolonged beyond thecae < 0.5 mm; pistillode 3-7 mm long. Female inflorescences with few flowers on short peduncles (< 2 cm long), rachis 3-4 cm long, glabrous to puberulent; flowers with calyx as in the male, but often larger; petals essentially free, imbricate, lanceolate, 2-5 cm long, white to yellow; ovary ovoid to ellipsoid, unilocular, 1-3 cm long, style short, usually < 0.5 mm long, stigmas to 1 cm long, most often irregularly branched. Fruits variously shaped, from ovoid to ellipsoid to globose, 2-10 × 1.5-6 cm, usually yellow to orange when ripe, pulp yellow to orange; seeds ellipsoid, 4-7 mm long, black, surrounded by membranous aril.

GENERAL DISTRIBUTION: Pantropical, but native in tropical America, having spread through cultivation.

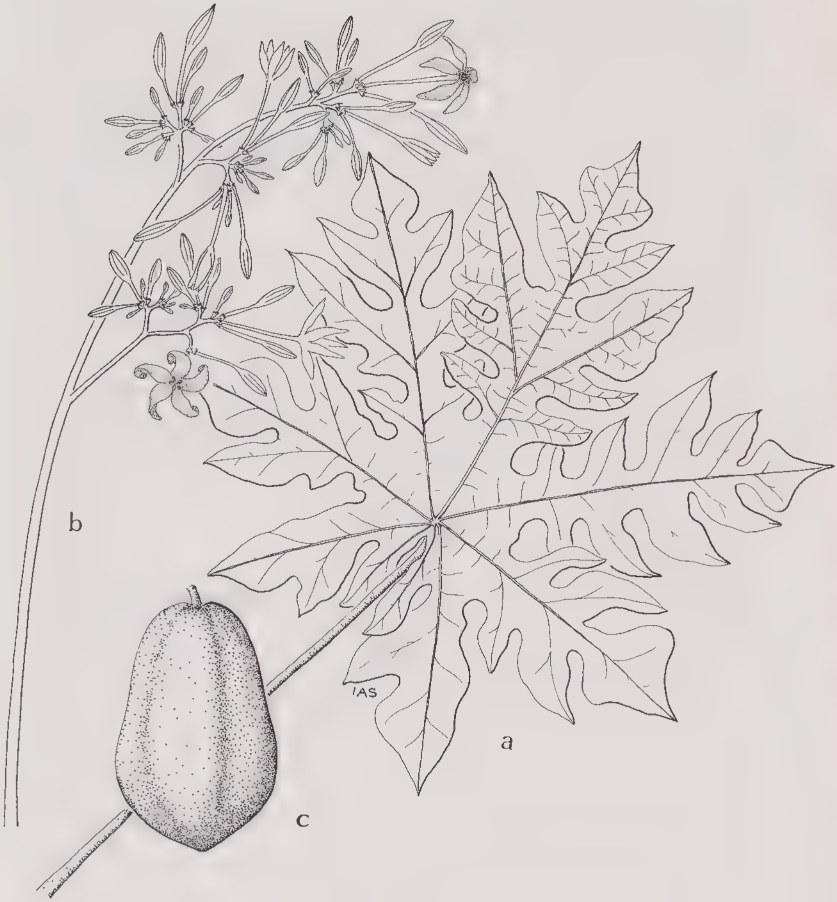


Figure 145. *Carica papaya*: a, leaf, × 0.45; b, staminate inflorescence, × 0.45; c, fruit, × 0.1.

Distribution in Lesser Antilles: St. Martin, St. Barts, Barbuda, Antigua, Saba, St. Eustatius, Montserrat!, Guadeloupe, Dominica!, Martinique!, St. Lucia!, St. Vincent, the Grenadines, Grenada!, Barbados.

Common names: Pawpaw, papaw, papaya, papayer, pied-papaye, papayer mâle, papayer femelle.

NOTES: This species is principally cultivated for its edible fruits, which may be eaten as you would a melon (but with the juice of a lime), or used to make preserves or sherbet. The juices are also extracted to make papaya-flavored drinks. The milky latex, obtained primarily from the fruits but also found elsewhere in the plant, is the source of proteolytic enzymes (mainly papain). These are used, for example, as meat tenderizers, to clarify beer, or to treat medically cases of dyspepsia.

The floral descriptions provided above are applicable to plants found in the wild, these being predominantly dioecious. Cultivated papayas often produce several additional floral morphs. The most common among these are bisexual, strongly sympetalous flowers with 10 stamens and a slightly 5-lobed ovary; and bisexual, obscurely sympetalous flowers with 5 alternipetalous stamens and a strongly 5-lobed ovary. The fruits of the cultivated papaya are also considerably larger than than their wild counterparts, with some reaching 50-60 cm in length and 20-30 cm in width.

LOASACEAE

by Allan J. Bornstein

LOASACEAE Dumort., Comment. Bot. 58. 1822 ('Loaseae').

Annual or perennial herbs, occasionally climbing (rarely shrubs or even small trees), commonly scabrous with barbed, stinging, and/or glandular hairs. Leaves alternate or opposite, simple but often lobed; exstipulate. Inflorescences cymose or the flowers solitary. Flowers regular, perfect, yellow, white, or red; calyx tube adnate to ovary with (4 or) 5 (to 7) sepal lobes, convolute or imbricate, persistent; petals as many as and alternate with sepals, inserted on throat of calyx, free or adnate with stamens to form a ring, or basally connate into a distinctly sympetalous corolla, induplicate-valvate or imbricate, deciduous; stamens 5, 10, or usually numerous, centripetal or centrifugal, commonly arranged in antipetalous bundles, distinct or basally connate, filaments filiform, anthers basifixed, bithecate, introrse and longitudinally dehiscent; staminodes present or absent, sometimes petaloid; ovary inferior, 3- to 5-carpellate but unilocular with parietal placentae, ovules 1 to many per placenta, style entire or apically 2- or 3-parted. Fruit a capsule, rarely indehiscent; seeds generally numerous, endosperm fleshy or absent.

TYPE: *Loasa* Adans.

A family of 14 or 15 genera and 200 to 250 species. Except for *Fissenia* of Africa and Arabia, the family is strictly New World, occurring in temperate and tropical climates.

MENTZELIA L.

Mentzelia L., Sp. Pl. **1:** 516. 1753.

Erect or straggling herbs, multi-branched, with conspicuous indument of variously barbed hairs, never stinging. Leaves alternate, rarely opposite, petiolate; blades coarsely toothed, pinnately veined and lobed. Inflorescences terminal cymes or the flowers solitary. Flowers 5-merous, sessile or short-pedicellate, yellow or white; hypanthium cylindric or clavate; sepals imbricate; petals imbricate, ± free but adnate with stamens to form a ring, apiculate at apex; stamens numerous, the outer ones often petaloid but apparently still fertile; ovary with 3 to 5 intrusive parietal placentae, ovules in 2 rows on each placenta, style filiform. Fruit a cylindric or clavate capsule, apically truncate, dehiscent by 3 to 7 apical valves; seeds flattened or angled, sometimes winged, testa smooth or rough, endosperm abundant or scanty.

TYPE: *Mentzelia aspera* L.

A genus of 50 to 60 species of temperate and tropical America, best developed in the southwestern United States and adjacent Mexico, but extending from Canada to Argentina. For additional information see I. Urban & E. F. Gilg, Monogr. Loas. 1-384. 1900 (also issued as Nova Acta Acad. Caes. Leop.-Carol. German. Nat. Cur. vol. 76), and J. Darlington, Ann. Missouri Bot. Gard. **21:** 103-226. 1934.

Mentzelia aspera L., Sp. Pl. **1:** 516. 1753. FIGURE 146.

Type: Not determined.

Annual herb, straggling, with branches erect or ascending to 1 m high; stems commonly yellowish, densely covered with retrorsely barbed hairs of different lengths, all with umbrellalike apex. Leaves alternate, with slender petioles 0.8-5 cm long, with barbed hairs; blades triangular-ovate to lanceolate, commonly hastately trilobed, ca. 2.5-8(-11) × 1.1-6.5 cm, base cuneate to subtruncate, apex acute or acuminate, margin coarsely and irregularly serrate, rough-pubescent on both surfaces with barbed hairs (these lacking the umbrellalike apex). Flowers solitary, axillary, sessile, yellow; calyx tube cylindric or narrowly clavate, to 13 mm long, densely barbed with umbrella-tipped hairs; lobes linear-lanceolate to ovate-lanceolate, 3-4(-7) mm long, apex long-acuminate, with barbed hairs; petals obovate, to 9 mm long, apex with pubescent apiculum; stamens 20 to 40, all fertile, filaments adnate to very base of petals, inner series filiform, 3-4 mm long, outer series flattened, petaloid, slightly longer, anthers oblong, ca. 0.5 mm long; style ca. 5 mm long, stigma papillose. Fruits cylindric to narrowly clavate, 1.5-2.5 cm long, initially crowned by calyx lobes, these eventually deciduous, 3-valved at apex, very rough-pubescent; seeds 6 to 9, oblong-ovoid to subrectangular, ca. 3 mm long, irregularly tuberculate, testa conspicuously undulate-striate, non-winged.

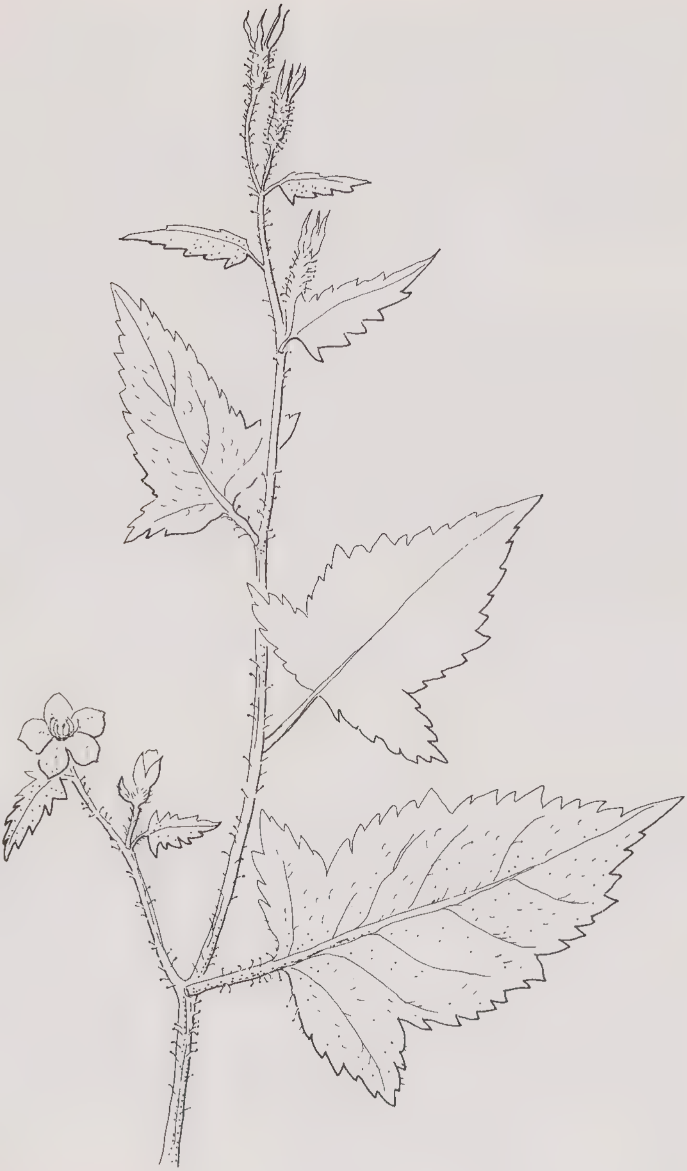


FIGURE 146. *Mentzelia aspera*, × 0.7.

General distribution: Southwestern United States to Bolivia-Brazil, Greater Antilles, Aruba, and Curaçao.

Distribution in Lesser Antilles: St. Lucia!.

Notes: Known from a single collection made in the early 1800's (*Crudy s.n.*, M!); it is unlikely that this species grows anywhere in our area at the present time.

Description based on material from elsewhere in the West Indies.

BEGONIACEAE

BEGONIACEAE Agardh, Aphor. Bot. 200. 1824.

Annual or perennial herbs with watery stems; monoecious or apparently dioecious. Leaves petiolate; blades asymmetrical, usually succulent or fleshy; stipules usually large and membranous, persistent or caducous. Inflorescences axillary, dichotomous. Staminate flowers with sepals 2, valvate, petals 2 or wanting, valvate, stamens numerous, free or partly united; pistillate flowers with 2- to 5-parted perianth, ovary inferior, 2- or 3-locular, ovules numerous, styles 3, free, twisted. Fruits winged capsules, papery or leathery; seeds minute, numerous.

Type: *Begonia* L.

A tropical family of 2 or 3 genera and over 1000 species, the vast majority in the genus *Begonia.*

BEGONIA L.

Begonia L., Sp. Pl. **2:** 1056. 1753.

Annual or perennial herbs with fibrous roots, rhizomes, or tubers. Leaves radical, alternate or distichous in two ranks; petioles often stout, succulent; blades usually asymmetrical, longer than wide or wider than long, basal lobes similar or different, apex rounded, acute, or acuminate, margin undulate or smooth, dentate, duplicato-dentate, crenate, or subentire, often ciliolate, plinerved; stipules often large, membranous, persistent or caducous. Inflorescences axillary, monoecious or dioecious, pedunculate, dichotomous, few- to many-flowered. Staminate flowers with 2 sepals, sometimes with 2 petals, stamens numerous or few, ovary rudiment wanting; pistillate flowers with 2 to 5 perianth segments, stamens wanting, ovary 3-locular, styles 3, commonly bifid, twisted, puberulent. Fruits capsular, dehiscent, winged, the wings of variable size and shape; seeds minute, numerous.

Type: *Begonia obliqua* L.

A genus of over 1000 species of the tropics worldwide.

NOTES: The basic treatment for *Begonia* in the Antilles has been that published by O. E. Schulz (*in* Urban, Symb. Antill. **7:** 1-29. 1911). Linnaeus' original description of a single species, *B. obliqua*, also listed five varieties subsequently recognized at the specific level. Schulz did not accept *B. obliqua L.*, and his key to the species has proved to be unusable. Golding (Phytologia **45:** 221-254. 1980) has proposed a lectotype and a typotype for *B. obliqua* L. on the basis of Plumier drawings reproduced by Golding as his Figure 2. L. B. Smith, D. C. Wasshausen, J. Golding and C. E. Karegeannes (Smithsonian Contr. Bot. **60:** 1-584. 1986) have published an "Illustrated Key" and an "Annotated Species List." The species recognized in the key are illustrated in all but a few cases with photographs of "holotype or type specimens," although some are reproductions of earlier drawings. The photograph of *B. obliqua* L. (32.14) is not that chosen earlier by Golding as the typotype. The Annotated Species List attempts to include all names used in the genus *Begonia*, supplying references and synonymy, but typification is not indicated. More species are recognized in their keys and the species list than are accepted in the following treatment for the Lesser Antilles. The problematic species is *Begonia obliqua* L., which Schulz and the authors of most recent floras of the area have called *B. macrophylla* Lam. As Golding indicated, Lamarck included *B. obliqua* L. in the synonymy of his *B. macrophylla*, and this name he should have adopted. *Begonia obliqua* L. has been studied in the field and is well represented by herbarium specimens, but is still not understood as to variation in sexuality of the plants, the nature of the stipules and bracts, the size and shape of the perianth, and size of the largest wing. A polymorphic species is accepted in this treatment.

Leaf size in the following descriptions is given as the length of the midrib versus the width of the asymmetrical blade.

CULTIVATED TAXA

"*Begonia semperflorens* Link & Otto" was reported by Schulz as cultivated in Guadeloupe. Fournet (1978) reported "*B. incarnata* Link & Otto," "*B. castanaefolia* Hort.?," "*B. corallina* Hort.," and "*B. rex Putz.*" as some of the taxa cultivated in the French islands. No herbarium vouchers have been seen.

EXCLUDED TAXA

Grisebach's record of *Begonia domingensis* and *B. rotundifolia* was considered by Schulz to be *B. dominicalis* (= *B. obliqua* L.), and his record of "*B. scandens* Sw." on the basis of an *Imray s.n.* collection from Dominica has not been traced and is probably an error.

KEY TO THE SPECIES

1. Flowers few, mostly 2 or 4, rarely 6 or more; primary peduncle rarely exceeding the leaves.
   2. Annual herbs, rarely to 3 dm tall; terrestrial.
      3. Blades twice as long as wide; margin coarsely dentate-lobed and dentate between, ciliolate; largest wing of capsules obtuse and ascending. . . . . *B. humilis*
      3. Blades less than twice as long as wide; margin undulate and minutely crenate, eciliolate; largest wing of capsules rounded . . . . *B. hirtella*
   2. Perennial herb, pendent; epiphytic (or terrestrial?); blades twice as long as wide, conspicuously long and abruptly acuminate at apex; wings of capsules narrowly deltoid and acuminate . . . . *B. pensilis*
1. Flowers numerous (often in hundreds); primary peduncle stout and usually exceeding the leaves, with up to 6 or more dichotomies; stout, erect, terrestrial perennials.
   4. Primary veins terminating in a large marginal tooth, intervening sinuses with crenate teeth; largest wing of capsules obtusely triangular, upper margin usually descending . . . . *B. retusa*
   4. Primary veins rarely terminating in an extended tooth, margin smooth or slightly undulate and crenate.
      5. Largest wing of capsules broad and obtuse, to 10 mm long. . . . . *B. vincentina*
      5. Largest wing of capsules narrowly triangular or deltoid, usually acuminate, to 17 mm long . . . . *B. obliqua*

Begonia hirtella Link, Enum. Hort. Berol. Alt. **2:** 396. 1822.

Type: Not determined. Described from a cultivated plant, and no authentic specimens are known.

Syn.: *Begonia villosa* Lindley, Bot. Reg. **15:** *pl. 1252.* 1829. (Type: Not determined.)
Begonia humilis sensu Duss, Fl. Phan. Antill. Franç. 321, not Dryander (1789).

Annual herb to 25 cm tall, stems with long, flaccid, crisp, brown hairs. Leaves with petioles 2.2-6 cm long, densely pilose with long brown hairs; blades subreniform to broadly ovate, 1.5-3.5 × 4-7 cm long, base rounded, apex rounded or acute, margin minutely crenate and slightly undulate, eciliolate; stipules narrowly lanceolate-oblong, 5-9 × 2-3 mm, ciliate and retuse at apex. Inflorescences few-flowered with primary peduncle to 3.5 cm long; bracts long-ciliate. Staminate flowers with sepals orbiculate, 3 cm long and wide; pistillate flowers with 4 oblong petals, 1.5-2 mm long. Capsule wings rounded, the largest to 7 mm long and 13 mm high.

GENERAL DISTRIBUTION: Jamaica, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!.

COMMON NAME: Oseille-bois.

NOTE: Frequent in banana plantations, probably introduced and established as a weed.

Begonia humilis Dryander *in* Aiton, Hort. Kew. **3:** 353. 1789.

Type: LINN-Sm. 1474.3; IDC 5073. 740: II. 1, photo!.

Annual herb to 30 cm tall, stems glabrous. Leaves with petioles 1-4 cm long, pilose at apex; blades ovate to oblong-ovate, 4.8-11 × 2-4.5 cm, base cordate, apex acute, margin coarsely dentate-lobed and dentate between, ciliolate, sparsely crispose above, strigose below; stipules oblong-ovate, 5-7 mm long, apex retuse, margin serrate, ciliate. Inflorescences few-flowered with primary peduncle 2-4 cm long; bracts ovate, 1-1.5 mm long, ciliate. Staminate flowers with sepals orbiculate to oval, 4 mm long; petals sublinear, 3 mm long; pistillate flowers with 5 oblong-obovate petals, 2-4 × 1-2 mm. Capsules on pedicels 6-11 mm long, wings ascending, the largest rounded or obtusely angular, 4-9 mm long and 7-9 mm high.

GENERAL DISTRIBUTION: Trinidad, Tobago, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Grenada!.

NOTE: Anderson records in his unpublished Hortus that he obtained seeds while in Trinidad, which he sent to Lee and Kennedy, nurserymen, in 1788. From this source, material was obtained at Kew as described by Dryander, who attributed the material to "Mr. Alex. Anderson." in the West Indies.

Begonia obliqua L., Sp. Pl. **2:** 1056. 1753. FIGURE 147.

Lectotype: Plum., "Codex Boerhaavianus," *pl. 124.* Typotype: Plum., mss. "Botanicon Americanum" **3:** *pl. 6.* 1689-1697.

Syn.: *Begonia macrophylla* Lam., Encycl. **1:** 394. 1785, nom. illegit.
Begonia odorata Willd., Enum. Pl. Suppl. 64. 1814, nom. nud.
Begonia odorata Willd. ex Link, Enum. Hort. Berol. Alt. **2:** 396. 1822. (Type: Not indicated.)
Begonia martinicensis A. DC., Ann. Sci. Nat. Bot. sér. 4, **11:** 123. 1859. (Lectotype: Martinique, *Sieber 39* (P).)
Begonia dominicalis A. DC. ex Griseb., Fl. Brit. W. Indian Is. 304. 1860. (Type: Not indicated.)

Erect, stout, perennial herb to 2 m tall, stems usually glabrous. Leaves with petioles 3-12 cm long, crispose-setose above or glabrate; blades oblong or ovate-oblong in outline, 11-21 × 6-15 cm, base unequally cordate, apex acuminate, margin undulate and crenulate to subentire, crispose-pubescent on veins or glabrous; stipules ovate-lanceolate, 1.2-2.5 × 0.7-1.2 cm, glabrous, caducous. Inflorescences multiflowered with primary peduncles to 26 cm long, 6 times dichotomous or more. Flowers variable in size; staminate flowers with sepals oblong-ovate, 7.5-10 × 6-7 mm, petals oblong-elliptic, 4 × 2 mm; pistillate flowers with 5 oblong-elliptic petals, 7-8 × 3 mm. Capsules truncate, the largest wing narrowly triangular or deltoid, ascending, 7-17 × 5-27 mm, acuminate or slightly obtuse.

GENERAL DISTRIBUTION: Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!.

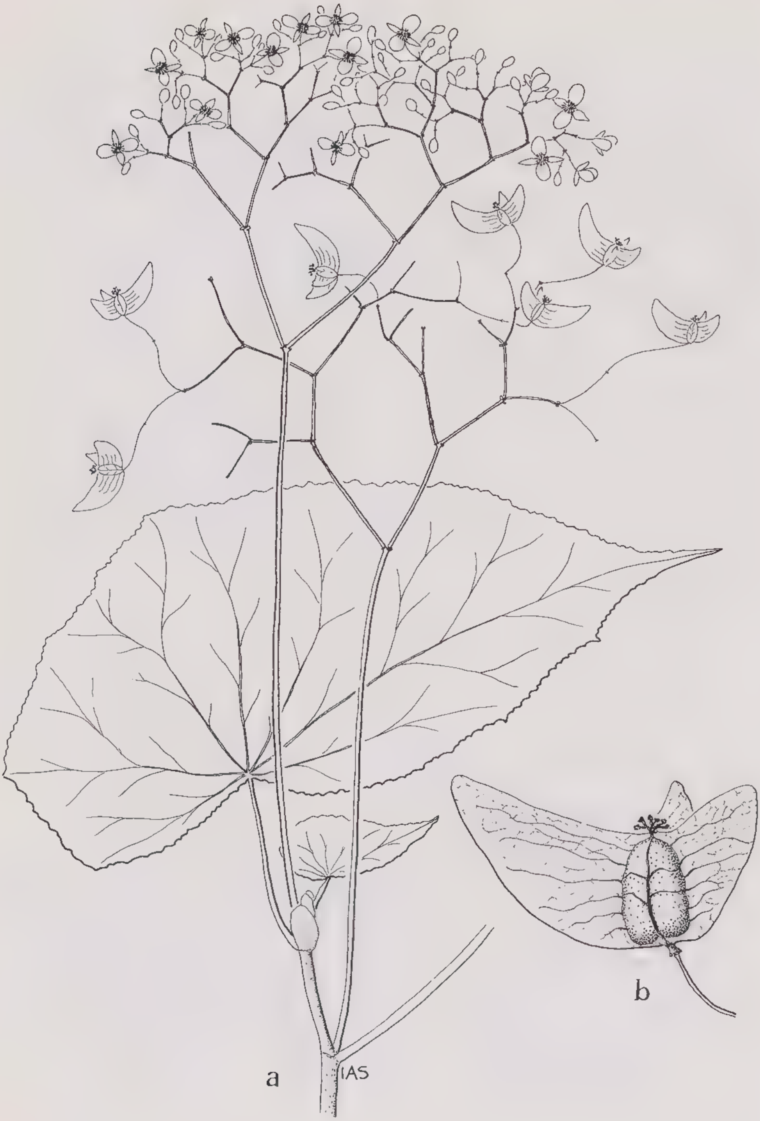


FIGURE 147. *Begonia obliqua*: a, flowering shoot, × 0.5; b, fruit, × 0.2.

COMMON NAMES: Oseille-bois, loze, l'eau zay, ciriel.

NOTES: For the lectotypification of this taxon, see Golding (Phytologia **45:** 221-254. 1980).

B. odorata as listed by Willdenow (1814) is without a description. Link (1822) stated only that the plant had an odor. Schulz (1911, p. 18) gives a full description and multiple literature citations. He cited specimens from Guadeloupe by *Forsström*, *Perrottet*, and *Duchassaing*, all s.n., and *Duss 3069, 3070, 3460*, represented at NY by one sheet referable to *B. obliqua*.

Begonia pensilis Lyman B. Smith & Wassh., Phytologia **54:** 469. 1984, nom. nov. for *Begonia pendula* O. Schulz.

Replaced Syn.: *Begonia pendula* O. Schulz *in* Urban, Symb. Antill. **7:** 7. 1911, not Ridley (1906).

Type: St. Vincent, *H. H. & G. W. Smith 1605* (holotype, B, presumably destroyed).

Subscandent or pendent perennial herb to 60 cm tall, epiphytic (or terrestrial?). Leaves with petioles 1.2-3.6 cm long, glabrous; blades ovate, 1-lobed, 10-13 × 3.5-5 cm, basal lobe semicordate, apex long-acuminate, often abruptly so, margin unevenly crenate-serrate, undulate between largest teeth, ciliate; stipules oblong-obovate, 10-12 mm long. Cymes 7- to 9-flowered with primary peduncle 7 cm long; bracts oblong-ovate, 5-5.5 mm long, subentire, caducous. Staminate flowers with sepals to 7.5 mm long, petals to 4 mm long, white; pistillate flowers with sepals oblong, 9 × 6 mm, petals broadly oblong, 11 × 9 mm. Capsules with pedicel 16-17 mm long, longest wing subascending, deltoid, 15-17 × 5 mm, acuminate.

GENERAL DISTRIBUTION: Endemic to St. Vincent!.

Begonia retusa O. Schulz *in* Urban, Symb. Antill. **7:** 20. 1911.

Syntypes: several collections cited.

Syn.: *Begonia purpurea* Euphrasén, St. Barts. 158. 1798, not Sw. (1788).
Begonia domingensis Bold., Fl. Dutch W. Ind. Is. 139. 1909, not A. DC. (1859).

Erect perennial to 1.5 m tall, stems purple-brown, glabrous. Leaves with petioles 4-11 cm long, pilose near apex or glabrate; blades oblong-ovate in outline, 5-15 × 9-25 cm, base unequally round-cordate, apex short-acuminate, margin with conspicuous teeth terminating primary veins, undulate between and unequally crenulate, pilose below; stipules oblong-lanceolate, 0.7-2 cm long, apex acuminate, glabrous, caducous. Inflorescences usually ca. 40-flowered with primary peduncle to 19 cm long, 6 times dichotomous; bracts oblong, to 1 cm long. Staminate flowers with sepals suborbiculate to ovate, 9-11 × 9 mm, petals narrowly obovate, 6-7 × 3 mm, white, stamens ca. 20; pistillate flowers with 5 obovate petals, 4 × 3-4 mm. Capsules truncate above with wings slightly descending, the largest triangular and obtuse, 1 × 1 cm.

GENERAL DISTRIBUTION: Restricted to northern Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Barts, Saba!, St. Eustatius!, St. Kitts!, Nevis!, Montserrat!.

NOTES: Schulz (loc. cit.) cited references to Euphrasén and Wikström and specimens from other islands, without indicating he saw specimens from St. Barts. Golding and Karegeannes (Smithsonian Contr. Bot. **60:** 223. 1986) seem also to select St. Barts as the type locality, but they do not cite specimens. The designation of a lectotype remains to be done.

Begonia vincentina O. Schulz *in* Urban, Symb. Antill. **7:** 14. 1911.

Syntypes: several collections cited from St. Vincent and Bequia.
Syn.: *Begonia vincentina* O. Schulz var. *scopulicola* O. Schulz *in* Urban, Symb. Antill. **7:** 15. 1911. (Type: St. Vincent, *H. H. & G. W. Smith 1935* (holotype, K).)

Perennial herb to 70 cm tall, stems glabrous, rarely pilose. Leaves with petioles 1.5-6 cm long, setose at apex or glabrous; blades oblong in outline, 5-10 × 6-12 cm, base unequally cordate, apex short-acuminate or acute, margin slightly undulate, crenate, setae present at tip and in sinuses when young, crispose on nerves below or glabrous; stipules long-ovate, to 1.5 × 1 cm, carinate below setose apex, margin denticulate and setose to entire. Inflorescences multi-flowered with primary peduncle to 20 cm long. Staminate flowers with sepals oblong-orbiculate, 9 × 5 mm, petals obovate, 7 × 3 mm; pistillate flowers with 5 obovate petals, 8-10 × 3 mm, white or pink. Capsules truncate above, largest wing broadly deltoid, to 10 × 7 mm, obtuse.

GENERAL DISTRIBUTION: Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Lucia!, St. Vincent!, Grenada!.

COMMON NAME: Hunter-man blossom.

NOTE: The variety *scopulicola* was described as smaller in all parts.

CACTACEAE

CACTACEAE A. L. Juss., Gen. Pl. 310. 1789.

Succulent woody plants, shrubs, trees or epiphytes, stems globose or cylindrical and ribbed or tuberculate, or cylindrical and fluted, or strongly ribbed and arching or scrambling, or with flattened and articulated joints. Leaves alternate, flat and fleshy or awl-shaped or scalelike but usually soon caducous or absent, mostly with clusters of radiating spines and/or bristles or hairs in areoles. Flowers borne from areoles, mostly solitary but occasionally cymose and pedicellate, regular, mostly bisexual; perianth indistinctly differentiated into sepals and petals borne on short or long hypanthia, petals white or brightly colored; stamens numerous, borne spirally or in groups, free or adnate to hypanthium, filaments slender, anthers longitudinally dehiscent; ovary inferior or enclosed in stem tissue, unilocular, frequently with nectariferous cavity above, ovules numerous on parietal placentae, style simple, often exserted, stigmas few to many. Fruit a berry, often spiny or bristle-bearing outside, occasionally dehiscent, commonly juicy with colored tissue or juice; seeds small, hard, with straight or curved embryo, testa often ornamented, arillate or strophiolate.

TYPE: *Cactus* L. = *Mammillaria* Haw., nom. cons.

An easily recognized family of great taxonomic complexity, occurring in the Western Hemisphere from Massachusetts and Washington south to Argentina, predominantly in drier areas. Only the genus *Rhipsalis* is considered to be indigenous in equatorial Africa to Madagascar and Ceylon. Over 200 genera have been described in a voluminous literature. Recently a consensus of classification has been sought, and 86 genera are proposed for recognition (Bradleya **4:** 65-78. 1986). That treatment is accepted here. The family name Cactaceae has been conserved and is one of several examples where the type has a name differing from the base of the family name (see E. Shaw, Cact. Succ. J. (Los Angeles) **48:** 21-24. 1976). The genus *Cactus* as described by Linnaeus comprised 22 species, now considered to represent 11 genera.

CULTIVATED TAXA

Dendrocereus (now *Acanthocereus*) *nudiflorus* (Engl.) Britton & Rose was once cultivated in the botanical garden on Dominica. *Epiphyllum phyllanthus* (L.) Haw. var. *hookeri* (Haw.) Kimnach and *Epiphyllum oxypetalum* (DC.) Haw. have been reported in cultivation on Antigua, Guadeloupe, and Martinique, but are undocumented by herbarium material. Certainly other cacti are to be expected in private gardens.

KEY TO THE GENERA

1. Leaves broad and flat, more or less persistent; branched trees or shrubs, or clambering woody plants; flowers pedicellate; seeds black, not arillate . . . *Pereskia*
1. Leaves small, terete or vestigial and early caducous or wanting; flowers sessile.
  2. Stems usually flattened segmented units, not cylindrical and ribbed; glochids present in areoles; terrestrial shrubs or small trees; seeds enclosed in whitish bony aril . . . . *Opuntia*
  2. Stems not flattened or regularly segmented but fluted or ribbed, rarely smooth; glochids wanting; plants terrestrial, epiphytic, or climbing; seeds brown or black, not arillate.
    3. Epiphytic or climbing plants with adventitious/aerial roots.
      4. Epiphytic hanging plants, much branched; stems terete, lacking spines on mature parts; flowers diurnal, less than 1 cm dia.; fruit white, not scaly; seeds few . . . . *Rhipsalis*
      4. Climbing or clambering plants; stems with 3 to several ribs; flowers usually nocturnal, more than 4 cm long.

5. Receptacle usually lacking spines, hairs, or bristles; stems 3-angled or -winged . . . . *Hylocereus*
5. Receptacle with hairs, bristles, or spines; stems 5- to 8-angled . . . . *Selenicereus*

3. Terrestrial plants, globular or arborescent, shrubby, arching or thicket-forming, if clambering not producing aerial roots; stems winged, ribbed, or tuberculate; spines present.
6. Stems globular or short-cylindric, ribbed or tuberculate, not jointed or flattened; flowers diurnal.
7. Stems with spine-bearing tubercles; milky latex present; flowers arising in axils between tubercles, white or cream . . . . *Mammillaria*
7. Stems ribbed; milky latex absent; flowers arising from a cephalium or dense, spiral mass of woolly hairs and bristles, pink . . . . *Melocactus*
6. Stems elongate, upright and columnar or weakly arching without adventitous roots; flowers nocturnal.
8. Stems erect, columnar, strict or branched, 6- to 12-ribbed.
9. Flowering and non-flowering areoles similar; hypanthium caducous after anthesis; stems 6- to 9-ribbed . . . . *Cereus*
9. Flowering and non-flowering areoles dissimilar, the flowering areoles long-woolly; hypanthium persistent in fruit; stems 10- to 12-ribbed . . . . *Pilosocereus*
8. Stems weakly arching, without adventitous roots if clambering, 4- or 5-ribbed; flowering areoles without woolly pubescence; hypanthium persistent in fruit; fruit spiny with blunt protuberances . . . . *Acanthocereus*

ACANTHOCEREUS Britton & Rose

Acanthocereus Britton & Rose, Contr. U. S. Natl. Herb. **12:** 432. 1909.

Slender, many-jointed cacti, at first erect but later clambering or trailing, joints usually strongly 4-or 5-angled; areoles bearing very short dense wool and few to many stiff, acicular spines, glochids wanting. Leaves wanting. Flowers nocturnal, sessile, funnelform; hypanthium persistent on mature fruit, green, slender, expanded at summit with few spine-bearing areoles, limb shorter than tube; outer perianth segments narrowly lanceolate to linear, acuminate, green, shorter than white inner segments; stamens shorter than perianth, attached along upper half of tube; style slender, stigma lobes several, linear. Fruits with conspicuous areoles, spiny, dark red, splitting irregularly from apex, flesh red; seeds numerous, black, exarillate.

TYPE: *Cereus pentagonus* L. = *Acanthocereus tetragonus* (L.) Hummelinck.

A genus of 8 species in southeastern U.S. south to Venezuela and Brazil.

Acanthocereus tetragonus (L.) Hummelinck, Succulenta (Leeuwarden) **20:** 165. 1938. FIGURE 148.

Basionym: *Cactus tetragonus* L., Sp. Pl. **1:** 466. 1753.
Neotype: Curaçao, *Hummelink 196* (fl), *170* (fr) (U).
Syn.: *Cactus pentagonus* L., Sp. Pl. **1:** 467. 1753. (Type: Not determined.)
Cereus pentagonus (L.) Haw., Syn. Pl. Succ. 180. 1812.
Cereus dussii Schumann, Gesamtbeschr. Kakt. 89. 1897. (Type: Guadeloupe, *Duss 3505.*)
Acanthocereus pentagonus (L.) Britton & Rose, Contr. U. S. Natl. Herb. **12:** 432. 1909.

Stems arching to 2-3 m high but to 7 m long, rooting at tips; juvenile stems terete with 6 to 8 ribs, mature growth (3- or)4- or 5-ribbed, shallowly undulate between areoles, spines gray, acicular, 10-12, to 3.5 cm long. Flowers with hypanthium 14-20 cm long, spiny. Mature fruits oblong, 5-7 cm long, 4 cm in diameter, purple to dark red.

GENERAL DISTRIBUTION: Florida to Texas, Mexico, Central America, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica, Martinique!, St. Lucia!, Grenada!.

COMMON NAME: Liane-raquette.

CEREUS Miller emend. Britton & Rose

Cereus Miller, Gard. Dict. abr. ed. 4. 1754, emend. Britton & Rose, Cact. **2:** 3-21. 1920.

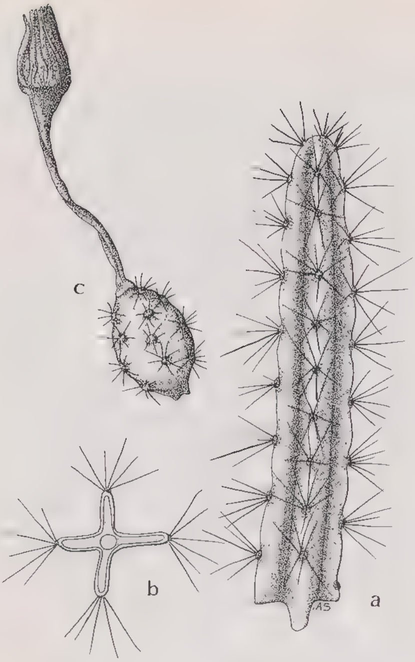
Columnar, erect, strict or branched plants with stems 6- to 9-ribbed; areoles spiny, similar in flowering and non-flowering regions, glochids wanting. Leaves wanting. Flowers nocturnal, sessile, often large and showy, campanulate expanding above; hypanthium with small scales, caducous after anthesis; outer perianth segments green, inner white, turning red or purple; stamens inserted in throat and tube, included; ovary without scales or prickles, style elongate but included, stigmas linear. Fruits ovoid or oblong, fleshy, red, splitting on one side; seeds numerous, black, exarillate.

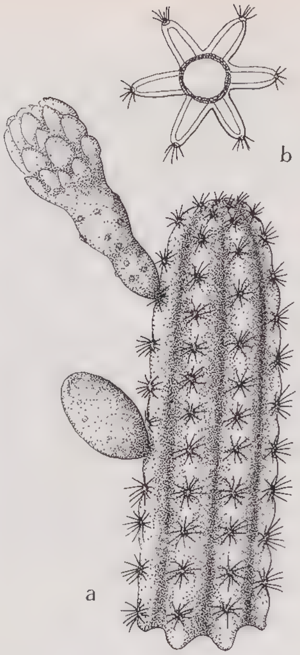
LECTOTYPE: *Cactus hexagonus* L. = *Cereus hexagonus* (L.) Miller.

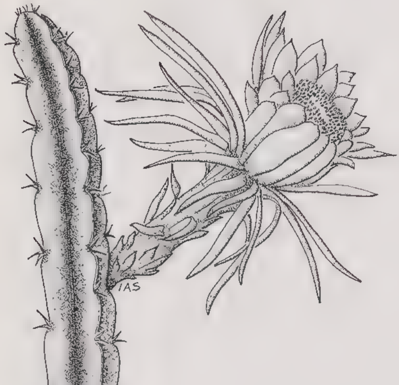
A genus of 25 to 30 species of the Caribbean and South America.

KEY TO THE SPECIES

Flowers large, 20-35 cm long; stem ribs 6, thin, 3-6 cm high....... *C. hexagonus*
Flowers small, 8 cm long or less; stem ribs 7 to 9, thick, 1 cm high............ .... *C. margaritensis*







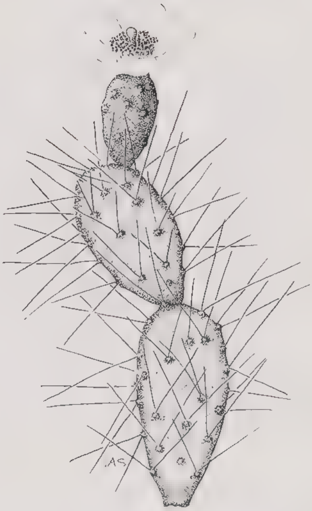


FIGURE 148 (upper left). *Acanthocereus tetragonus*: a, stem, × 0.4; b, x-section stem, × 0.4; c, fruit, × 0.4. FIGURE 149 (upper right). *Cereus margaritensis*: a, stem, × 0.4; b, x-section stem, × 0.4. FIGURE 150 (lower left). *Hylocereus undatus*, × 0.4. FIGURE 151 (lower right). *Opuntia triacantha*, × 0.4.

Cereus hexagonus (L.) Miller, Gard. Dict. ed. 8, no. 1. 1768.

Basionym: *Cactus hexagonus* L., Sp. Pl. **1:** 466. 1753.
Type: Leuenberger (Willdenowia **16:** 499. 1987) indicated that formal lectotypification will be proposed.
Syn.: *Cereus peruvianus* auct., not Miller (1768).

Plant to 15 m tall, usually branched from base; stems 6-ribbed, these thin, 3-5 cm high, margins undulate; areoles small, woolly, spines few or wanting, 2-3 mm long on young branches or to 6 cm long on older branches. Flowers 20-35 cm long; outer perianth segments lanceolate to oblong-lanceolate, 6-7 cm long, apiculate, green tinged with purple, inner segments oblong-lanceolate, 7-8 cm long, white; style green. Fruits ovoid, 5.5-13 cm long, 7-10 cm in diameter, often oblique, truncate or depressed at apex, red, areoles scattered, pulp pink.

GENERAL DISTRIBUTION: Northern South America and cultivated elsewhere.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!.

NOTES: Britton & Rose (Cact. **2:** 4. 1920) stated the type locality to be Surinam and attributed the plant to the southern West Indies and northern South America. They once considered this species to be the same as *Cereus peruvianus* (Contr. U. S. Nat. Herb. **12:** 414. 1909), and various authors for the Lesser Antilles have agreed. The specimens seen from the Lesser Antilles were along roadsides, obviously cultivated in cemeteries or persisting near old foundations.

Cereus margaritensis J. Johnston, Proc. Amer. Acad. Arts **40:** 693. 1905.
FIGURE 149.

Type: Margarita, El Valle, *Johnston 344* (holotype, GH!).
Syn.: *Cereus grenadensis* Britton & Rose, Cact. **2:** 223. 1920. (Type: Grenada, Feb. 24, 1920, *Britton & Hazen s.n.* (NY).)
Subpilocereus grenadensis (Britton & Rose) Backeb., Die Cactaceae **4:** 2383. 1960.

Much-branched columnar cactus to 7 m tall; trunk short, to 25 cm in diameter, branches 7- to 9-ribbed, gray-green, to 1 cm wide; areoles in slight depressions, spines subulate, to 17 in number, with 1 or more exceeding 5 cm in length. Flowers to 8 cm long; outer perianth segments rounded or apiculate, inner rounded; ovary oblong with few naked areoles. Fruits oblong to ellipsoid, 4 cm long, 3-5 cm in diameter, red.

GENERAL DISTRIBUTION: Margarita and possibly other adjacent islands.

DISTRIBUTION IN LESSER ANTILLES: Grenada!.

NOTES: Britton and Rose reported the flowers of *Cereus grenadensis* to be purple. Open flowers seen in the late afternoon and early morning had the center perianth segments white or yellowish white. Older and closed flowers had a red-purple tinge to the outer and inner perianth segments. Plants were scattered and infrequent.

HYLOCEREUS Britton & Rose

Hylocereus Britton & Rose, Contr. U. S. Natl. Herb. **12:** 428. 1909.

Climbing and sprawling cacti with adventitious aerial roots; stems elongate, 3-angled or -winged, margins usually undulate; areoles with spines and tufts of woolly hairs or, when young, with bristles, glochids wanting. Flowers nocturnal, sessile, large, funnelform, limb equaling or exceeding tube; hypanthium with fleshy scales, usually lacking spines or hairs in their axils; outer perianth lobes transitional from scales, inner perianth segments narrow, acute or acuminate; stamens in two series; style stout, stigmas linear. Fruits usually spineless with persistent succulent scales, green or red, pulp white; seeds black, exarillate.

TYPE: *Cactus triangularis* L. = *Hylocereus triangularis* (L.) Britton & Rose.

A genus of 15 to 20 poorly defined species of the Greater Antilles, Mexico, Central America, and northern South America.

KEY TO THE SPECIES

Margin of stems undulate, horny, with spines in the depressions; scales on ovary large, imbricate . . . . *H. undatus*

Margin of stems shallowly crenate, not horny, with spines on apices of the crenations; scales on ovary small, scattered . . . . *H. trigonus*

Hylocereus trigonus (Haw.) Saff., Annual Rep. Board Regents Smithsonian Inst. **1908:** 553. 1909.

Basionym: *Cereus trigonus* Haw., Syn. Pl. Succ. 181. 1812.
Type: St. Croix, Plum., Pl. Amer. *t. 200, fig. 2.* 1758.
Syn.: *Cereus napoleonis* Graham *in* Hook., Bot. Mag. **63:** *pl. 3458.* 1836. (Type: Loc. cit. *pl. 3458.*)
Hylocereus napoleonis (Graham) Britton & Rose, Contr. U. S. Natl. Herb. **12:** 429. 1909.
Hylocereus antiguensis Britton & Rose, Cact. **2:** 193. 1920. (Type: Antigua, *Rose, Fitch & Russell 3297* (NY).)

Stems elongate, 2-4 cm broad, thickly 3-angled, margins not horny, straight or depressed between areoles borne on apices of crenations; spines 2, 4, or 8, 4-7 mm long, turning dark brown. Flowers 14-25 cm long; hypanthium with small scattered scales, often with short spines in axils; inner perianth segments white. Fruits oblong-ovoid, 7-10 cm long, 3-5 cm in diameter, red, with fleshy scales.

GENERAL DISTRIBUTION: Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Antigua!, Saba!, St. Eustatius!, Nevis!, Montserrat!, Guadeloupe, Marie Galante!, Martinique, St. Vincent!, Grenada!.

COMMON NAMES: Pomme-jardon, cierge-lezard, cierge-liana, night blooming cactus.

NOTE: It is possible that *Cereus pomifer* Weing. (Z. Sukkulentenk. **3:** 70. 1927), based on *Duss 1759* from Martinique, should be assigned to this genus and to the synonymy of this species. The cited material cannot be located.

Hylocereus undatus (Haw.) Britton & Rose *in* Britton, Fl. Bermuda 256. 1918. FIGURE 150.

Basionym: *Cereus undatus* Haw., Philos. Mag. Ann. Chem. **7:** 110. 1830.
Type: Not determined.

Sprawling or ascending into trees; stems elongate, 3-ribbed, margins strongly undulate, horny, at least with age, with areoles in the depressions; spines 1 to 3, or wanting, each 3-6 mm long, wool and bristles often present. Flowers to 30 cm long; hypanthium with broad, imbricate scales; outer perianth segments green, often reflexed, inner perianth segments white. Fruits oblong, 10-15 cm long, 10-12 cm in diameter, red, commonly covered with succulent, foliaceous, broad-based scales.

GENERAL DISTRIBUTION: Cultivated in tropical areas.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Guadeloupe!, Martinique!.

MAMMILLARIA Haw.

Mammillaria Haw., Syn. Pl. Succ. 177. 1812, nom. cons.

Syn.: *Cactus* L., Sp. Pl. **1:** 466. 1753, nom. rejic.

Plants globose or short-cylindrical, often with milky latex in tubercles and cortex; tubercles in more or less spiral rows, terete, usually bearing wool or hairs and bristles in axils and crowned with spine-bearing areoles; spines all alike or central one larger and radial, glochids wanting. Leaves wanting. Flowers diurnal, borne in axils between tubercles, relatively small; hypanthium very short; perianth segments narrow and spreading, white or yellowish in our species; stamens numerous, borne on tube, usually included; style barely protruding, stigmas linear. Fruits clavate, strongly narrowed at base, rounded at apex, naked, pink or red; seeds brown or black in our species, exarillate.

TYPE: *Cactus mammillaris L.* = *Mammillaria mammillaris* (L.) Karsten, typ. cons.

A genus of about 150 species of the southwestern United States, Greater Antilles, Mexico, and northern South America. For further information see D. R. Hunt, Cact. Succ. J. Gr. Brit. **38:** 11-14. 1976, **38:** 35-38. 1976, **43:** 41-48. 1981; Bradleya **1:** 105-128. 1983, **2:** 65-96. 1984, **3:** 53-66. 1985, **4:** 39-64. 1986, and "A New Review of Mammillaria Names," British Cact. Succ. Soc. (1987).

KEY TO THE SPECIES

Plants with dense white wool persisting in axils of tubercles; central spine solitary to 1.5 cm long, yellow turning brown; fruits bright pink-red, remaining within matrix of spines .... *M. nivosa*

Plants without wool in axils of tubercles; central spines 3 to 5, 7-8 mm long, reddish brown; fruits carmine red, protruding between clusters of radial spines .... *M. mammillaris*

Mammillaria mammillaris (L.) Karsten, Deut. Fl. 888. 1882.

Basionym: *Cactus mammillaris* L., Sp. Pl. **1:** 466. 1752.
Lectotype: J. Commelijn, Horti Med. Amstelod. **1:** 105, *t. 55.* 1697; designated by Wijnands (1983).
Syn.: *Mammillaria simplex* Haw., Syn. Pl. Succ. 177. 1812, nom. illegit.

Plants globose to short-cylindrical, to 20 cm tall; tubercles conic or nearly terete, 7-12 mm high, glossy light to dark green, with milky latex; areoles round, 2-3 mm in diameter, with dense, light brown wool when young, axils with scant wool; spines 10 to 16, central ones 3 to 5, 7-8 mm long, subulate, straight, reddish brown. Flowers 10-12 mm long; inner perianth segments whitish cream to pale yellow. Fruits 10-20 mm long, 6-8 mm in diameter, carmine red, protruding between clusters of radial spines; seeds brown.

GENERAL DISTRIBUTION: Northern Venezuela and adjacent islands.

DISTRIBUTION IN LESSER ANTILLES: Known only from Canouan, the Grenadines.

Mammillaria nivosa Link ex Pfeiffer, Beschr. Synon. Cact. 12. 1837.
FRONTISPIECE 1g-i.

Type: Tortola, cultivated plant, no specimens known and neotype needed.
Syn.: *Mammillaria tortolensis* Pfeiffer, Enum. Diagn. Cact. 11. 1837, nom. illegit.
Coryphantha nivosa (Link ex Pfeiffer) Britton, Ann. Missouri Bot. Gard. **2:** 45. 1915.
Neomammillaria nivosa (Link ex Pfeiffer) Britton & Rose, Cact. **4:** 71. 1923.
Mammillaria flavescens (DC.) Haw. var. *nivosa* (Link ex Pfeiffer) Backeb., Die Cactaceae **5:** 3169. 1961.

Plants usually globose, becoming cylindrical with age, to 20 cm tall, 15 cm in diameter, proliferating from base, forming colonies; stem cortex and tubercles with milky latex, tubercles to 10 mm long, copious amounts of white wool in axils; areoles with short scant pubescence, apical spines 7 or 8, with solitary central spine, to 1.5 cm long, bright yellow turning brown and almost black. Flowers borne in wool, 1.5 cm long, bright cream or light yellow. Fruits 12 mm long, pink-red, remaining within matrix of spines; seeds brown.

GENERAL DISTRIBUTION: Desecheo, Tortola, Turks & Caicos, Bahamas.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Antigua!.

COMMON NAME: Pope's head.

NOTES: In the original description Pfeiffer, and later Craig, (Mammillaria Handbook 67. 1945) suggested a similarity to *M. flavescens* (DC.) Haw., a species attributed only to warm parts of America and not typified or represented by any specimens yet located. Backeberg published the varietal combination but Krainz (Die Kakteen 1, III 1969, C VIIIc. ca. 1969) returned *M. nivosa* to specific rank. Hunt (Cact. Succ. J. Gr. Brit. **43:** 46. 1981) listed *M. flavescens* as a synonym of *M. nivosa* with a question mark. It seems unreasonable to assign this attractive species to the varietal status of a ''name'' so poorly known.

MELOCACTUS Link & Otto

Melocactus Link & Otto, Verh. Vereins Beförd. Gartenbaues Königl. Preuss. Staaten **3:** 417, *t. 11, 12, & 25.* 1827, nom. cons.

Plants solitary or clustered, globular to cylindric, often depressed when young, milky latex absent; stems 10- to 22-ribbed, mostly straight, but occasionally spiraled, branched, or fused; areoles with clusters of spines on ribs, central spine straight, radial spines straight or arching or recurved, glochids wanting. Leaves wanting. Flowers small, salverform, pink, spirally borne in terminal cephalium or compact mass of hairs and bristles, short to long and exceeding the body, if broken the cephalium may be replaced with several cephalia or smaller vegetative bodies; perianth parts spreading; stamens attached near top of short hypanthium; style slender, stigma lobes few, linear. Fruits oblong to clavate, tapering at base, rounded at apex, smooth, pink, or white at base, style persisting; seeds black, exarillate.

TYPE: *Melocactus communis* (Aiton) Link and Otto, based on *Cactus melocactus* L. var. *communis* Aiton = *Melocactus intortus* (Miller) Urban, typ. cons.

A genus of perhaps 20 species, described under 150 to 200 names, occurring in the Greater Antilles, Mexico, Central America, and in northern South America between eastern Brazil and Peru. The typification suggested above is that proposed in the committee attempt to reach a consensus on the use of names in the Cactaceae (Bradleya **4:** 71. 1986). This follows to a degree the data published by D. Hunt in an article, The Cactaceae of Plumier's Botanicum Americanum (Bradleya **2:** 39-64. 1984). The Sydney edition of the International Code of Botanical Nomenclature (#5409, p. 384. 1983) cites the type of the conserved *Melocactus* Link and Otto as *M. communis* Link & Otto (*Cactus melocactus* L.), a plant from Jamaica. Aiton (Hort. Kew **2:** 150. 1789) proposed two varieties in addition to the typical one: var. *communis* with 17 ribs and var. *depressus* with 10 ribs, which is not involved in this discussion. The variety *communis* may be the plant of the Lesser Antilles that Miller (Gard. Dict. ed. 8, no. 2. 1768) obtained from Antigua and described as *Cactus intortus.* Unfortunately, Miller described a plant with 15 ribs and also cited a Plumier reference that must be excluded. To retain a widely used name, we conclude that the oldest name at species rank is *Cactus intortus* Miller, transferred to *Melocactus* by Urban. The wording in the Code of Botanical Nomenclature for the typication of a conserved *Melocactus* must be changed, and a new name must be sought for *Cactus melocactus* L. as it applies to a species in Jamaica.

KEY TO THE SPECIES

Radial spines acicular, widely spreading and incurved	*M. broadwayi*
Radial spines stout, divergent, straight or nearly so	*M. intortus*

Melocactus broadwayi (Britton & Rose) A. Berger, Entwicklungslin. Kakt. 103. 1926.

Basionym: *Cactus broadwayi* Britton & Rose, Cact. **3:** 229. 1922.
Type: Tobago, in 1921, *Freeman s.n.* (US).

Plants globose-cylindric, 10-20 cm tall, ribs 14 to 18; spines 8 to 10, each 1-1.5 cm long, central spine 1, erect, radial spines acicular, widely spreading, incurved, all brown. Cephalium hemispheric, 2-8 cm tall, bristles brown, wool copious, white. Flowers pink-purple. Fruits clavate, 2.5 cm long, red-purple.

GENERAL DISTRIBUTION: Tobago.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!, the Grenadines!, Grenada!.

NOTES: This species may be another example of a distribution between the Grenadines and/or Grenada and the islands of Margarita, Aruba, Bonaire and Curaçao, as represented by *Mammillaria mammillaris, Cereus margaritensis,* and *Opuntia wentiana.* Unfortunately, Suringar described over 90 species of *Melocactus* from the Dutch islands, none of them represented by herbarium specimens. Nearly all of Suringar's ''species'' have been reduced to synonymy of ''*Cactus macracanthos*'' by Britton and Rose. It is possible that one of Suringar's names may represent an older valid specific epithet for this species.

Melocactus intortus (Miller) Urban, Repert. Spec. Nov. Regni Veg. **16:** 35. 1919. FRONTISPIECE 1a-f.

Basionym: *Cactus intortus* Miller, Gard. Dict. ed. 8, no. 2. 1768, for plant from Antigua.
Type: Neotype to be designated.
Syn.: *Cactus melocactus* L. var. *communis* Aiton, Hort. Kew **2:** 150. 1789. (Type: Not determined.)
Melocactus atrosanguineus Pfeiffer, Enum. Diagn. Cact. 42. 1837. (Type: St. Thomas, no specimens known.)
Melocactus bradleyi Sur., Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk., Tweede Sect. **5**(3): 23. 1896. (Type locality: Nevis and St. Kitts, no specimens known.)
Melocactus croceus Sur., loc. cit. **5**(3): 40, *fig. 5.* 1896. (Type locality: St. Martin, no specimens known.)

Melocactus eustachianus Sur., loc. cit. **5**(3): 37. 1896. (Type locality: St. Eustatius, no specimens known.)

Melocactus eustachiana Sur. forma *vetustior* Sur., loc. cit. **5**(3): 37. 1896. (Type locality: St. Eustatius, no specimens known.)

Melocactus hookeri Sur., loc. cit. **5**(3): 31. 1896. (Type: Bot. Mag. **58:** *pl. 3090.* 1831.)

Melocactus linkii Sur., loc. cit. **5**(3): 39, fig. 4. 1896. (Type locality: St. Martin, no specimens known.)

Cactus intortus Miller forma *desiradensis* Stehlé, Fl. Agron. Antill. Franç. **10:** 124. 1958, nom. illegit.

Cactus intortus Miller forma *quentinianus* Stehlé, loc. cit., nom. illegit.

Plants globose to cylindric, to 1 m tall, ribs 9 to 25; spines 10 to 15, stout, divergent, straight or nearly so, 2-7 cm long, yellow to brown or black. Cephalium cylindric, short and hemispheric to elongate and reaching 1 m in length, wool copious, white, bristles slender, soft, red-brown. Flowers pink, 1.5-2 cm long. Fruits oblong to clavate, 2-2.5 cm long, pink, often white at base.

GENERAL DISTRIBUTION: Bahamas, Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis!, Redonda!, Montserrat!, Guadeloupe!, La Désirade!, Les Saintes!, Dominica!.

COMMON NAMES: Turk's cap, Pope's heads, tête a l'anglais, tet angle, barrel cactus.

NOTES: This is a plant of considerable variation in size, shape, and appearance. When young the plants may be globular or depressed, and in age, globular, cylindrical, or tapering at the apex. When pushed over, buds may develop as young plants or ''pups'' at the base, along the ridges, or at the apex. The areoles are essentially glabrous in vegetative growth, but with age and the induction of flowering the apex of the plant is white with hairs, developing a cephalium that is at first short and convex, becoming elongate and reaching a length of one meter. Fasciated cephalia have been seen. If the cephalium is broken off the apex of the plant, vegetative ''pups'' or additional young cephalia may develop. The ribs are vertical, varying in number from 9 to 25, most frequently 14 to 17. Ribs may bifurcate upward or fuse, in either case changing the number of ribs seen in a cross section. Occasionally the ribs may be slightly spiral, but nothing has been seen comparable to the illustration of Plumier mss. P 9 (see Hunt, Bradleya **4:** 45. 1986) and Descourtilz (Fl. Méd. Antilles **7:** 270, *t. 515.* 1829), which led to the name *intortus.*

There appears to be no means of determining the age of the cephalium. The plants are found in continuous flowering condition, with a few to several dozen flowers appearing in definite and complex spiral phyllotaxy. The plants are visited by hummingbirds. The fruits are embedded in the wool of the cephalium when first formed but appear to be slowly extruded on development. The base of the fruit is always tapered and may well be squeezed out to lie on the surface of the cephalium or drop to the ground. A black thrush was observed to swoop down and fly off with fruit. In St. Kitts several examples of the fruits of this plant were seen squashed or smeared in numbers on the surface of branches of nearby shrubs. Small bits of the red fruit were present with myriads of seeds, suggesting that birds were more interested in the fleshy fruit wall than in consuming the seeds or the whole fruit.

Dying plants shrivel and turn yellow-orange or bright red. It is suggestive that the plant Pfeiffer described as *Melocactus atrosanguineus* was such an example in cultivation.

OPUNTIA Miller

Opuntia Miller, Gard. Dict. abr. ed. 4. 1754.

Syn.: *Nopalea* Salm-Dyck, Cact. Hort. Dyck. **1849:** 63. 1850. (Lectotype: *Nopalea cochenillifera* (L.) Salm-Dyck (*Cactus cochenillifer* L.).)
Consolea Lemaire, Rev. Hort. **1862:** 174. 1862. (Lectotype: *Consolea spinosissima* (Miller) Lemaire (*Opuntia spinosissima* Miller).)

Plants with jointed branching stems, clump-forming, prostrate, creeping, or treelike with stout or slender cylindrical stems; joints usually flattened. Leaves small, mostly subulate and pointed, early caducous; areoles flat or raised, with long or short acicular spines, or both, or these wanting, glochids numerous, additional pubescence often present. Flowers sessile, on margin or surface, or both, of joints; hypanthial tube generally short; perianth imbricate, outer segments grade into petals in size and color, erect or spreading; stamens numerous, shorter than petals or exceeding them and exserted; ovary with areoles with or without spines and/or glochids, style longer than stamens, stigmas 2 to 7. Fruits fleshy, brightly colored; seeds numerous, enclosed in hard white aril.

TYPE: *Cactus opuntia* L. = *Opuntia compressa* (Salisb.) J. F. Macbr. The committee seeking a consensus apparently does not agree with the conclusions of Howard & Touw (Cact. Succ. J. (Los Angeles) **53:** 233-237. 1981), as they state (Bradleya **4:** 75. 1986) that both *Cactus opuntia* L. and *Opuntia vulgaris* Miller are mixtures of elements and that lectotypes for both names will be proposed in the near future.

A genus of perhaps 200, poorly understood species. Nearly all segregate genera based on the treelike habit, cylindrical joints, or exserted stamens applied to the West Indian species are now considered synonyms of *Opuntia*. For additional information on the Lesser Antillean species see R. Howard & M. Touw, Cact. Succ. J. (Los Angeles) **54:** 170-179. 1982.

KEY TO THE SPECIES

1. Areoles without large spines or rarely solitary spines or clusters of small spines; pads usually several times as long as wide; cultivated plants or persisting after cultivation.
    2. Petals crimson, erect not spreading; stamens exserted. . . . *O. cochenillifera*
    2. Petals yellow, spreading; stamens shorter than petals . . . . . . *O. ficus-indica*
1. Areoles with long spines.

3. Tree form with slender, cylindrical trunk densely clothed with clusters of long spines; flattened joints elongate; flowers red-orange, commonly proliferous . . . . *O. rubescens*

3. Plants branching from near base, prostrate or erect but rarely producing a short, thick, flattened trunk with few residual spines.

4. Joints not readily detached; spines stout, straight or curved, yellow or banded, commonly flattened on one side near base, apex not noticeably retrorse-barbed and easily removed from flesh or clothing.

5. Perianth orange or salmon-rose; fruits oblongoid, usually rounded at base, commonly on face of joint . . . . *O. elatior*

5. Perianth yellow; fruits obovoid, usually tapering at base, rarely found on face of joint . . . . *O. dillenii*

4. Joints, at least the upper ones, readily detached; spines acicular, generally gray or white, noticeably retrorse-barbed at apex and removed from flesh or clothing with difficulty.

6. Plants prostrate, creeping in single row of pads or descending from cliff faces; shy bloomer; joints moderately turgid in section . . . . *O. curassavica*

6. Plants erect; freely flowering; joints flattened in section.

7. Plants generally branched in one plane; joints primarily oblong; spines white, 4 cm long; fruits bright red . . . . *O. triacantha*

7. Plants generally compact through branching in several planes; joints obovate; spines gray, rarely 3 cm long; fruits dull red . . . . *O. wentiana*

Opuntia cochenillifera (L.) Miller, Gard. Dict. ed. 8, no. 6. 1768.

Basionym: *Cactus cochenillifer* L., Sp. Pl. **1:** 468. 1753.
Lectotype: Dill., Hort. Eltham. **2:** *pl. 297, fig. 383.* 1732.
Syn.: *Nopalea cochenillifera* (L.) Salm-Dyck., Cact. Hort. Dyck. **1849:** 64. 1850.

Generally tall and much-branched plants, to 6 m; trunk to 20 cm in diameter, branches ascending or spreading; joints oblong, 50 × 25 cm, spines none or minute, glochids numerous. Leaves awl-shaped, early caducous. Flowers with perianth parts erect, crimson; stamens exserted for 1-1.5 cm, pink; ovary globular, 2-3 cm in diameter, areolate with many glochids. Fruits bright red.

GENERAL DISTRIBUTION: Possible native of Jamaica but introduced and cultivated in many tropical areas.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Grenada!, Barbados!.

COMMON NAMES: Nopal, raquette sans piquant, cochineal cactus, wachet.

NOTES: Originally introduced in many areas as a potential host plant for the cochineal insect and the production of a dye material. None of the insects has been seen in the Lesser Antilles in recent years. Very young pads are occasionally used for food.

Opuntia curassavica (L.) Miller, Gard. Dict. ed. 8, no. 7. 1768.

Basionym: *Cactus curassavicus* L., Sp. Pl. **1:** 469. 1753.
Lectotype: J. Commelijn, Horti Med. Amstelod. **1:** 107, *t. 56.* 1697; designated by Wijnands (1983).

Plants prostrate and creeping or hanging over rocks and cliffs; joints oblong to oval, 5-10 × 3-7 cm, thick, oblong-elliptic in section, fragile and easily detached; areoles with 2 to 4 or to 12 acicular spines to 2.5 cm long, straight and spreading, gray, noticeably retrorse-barbed at apex, glochids numerous, yellow, wool white. Flowers rarely produced; perianth to 2.5 cm long, yellow; ovary oblong, 2-3 cm long. Mature fruits unknown.

GENERAL DISTRIBUTION: Aruba, Bonaire, Curaçao, and adjacent small islands.

DISTRIBUTION IN LESSER ANTILLES: St. Eustatius!, Redonda!.

COMMON NAMES: Suckers, pin cushion.

NOTES: These plants contrast with *O. triacantha* in the prostrate or hanging habit. On Redonda they formed long festoons from the cliffs. No flowers were seen in the field, and specimens cultivated in greenhouses in Massachusetts failed to bloom in the following decade. The plants were probably introduced to St. Eustatius from the southern Netherlands Antilles.

Opuntia dillenii (Ker Gawler) Haw., Suppl. Pl. Succ. 79. 1819.

Basionym: *Cactus dillenii* Ker Gawler *in* Edwards, Bot. Reg. **3:** *pl. 255.* 1818.
Lectotype: Loc. cit. *pl. 255*; designated by Benson (1969).
Syn.: *Opuntia stricta* (Haw.) Haw. var. *dillenii* (Ker Gawler) L. Benson, Cact. Succ. J. (Los Angeles) **41:** 126. 1969.

Low spreading plants often forming massive and extensive clumps, rarely completely erect and branched or exceeding 2 m tall; joints obovate to oblong, 17-40 × 12-20 cm, margin and surface usually undulate, bluish green and glaucous, not readily detached; areoles slightly elevated, spines stout, 2 to 10, curved, yellow often banded with brown, flattened on one side at base, apex not noticeably retrorse-barbed, glochids numerous, yellow, wool white or brown. Leaves subulate, recurved, to 5 mm long. Flowers mostly marginal, rarely found on face of joint; perianth bright yellow, petals spreading, 4-5 cm long; ovary obovoid, 3 cm long in flower, becoming 7-9 cm long in fruit, narrowed at base. Mature fruits obovoid, bright red-purple to pinkish red, usually extremely juicy, areoles with slender spines or spineless, glochids present; seeds white.

GENERAL DISTRIBUTION: Southern United States, Greater Antilles, and introduced elsewhere in the American tropics.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis!, Redonda!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Prickly pear, dildo, tuna, raquette, broad-leafed cassie.

NOTES: Many herbarium specimens have been seen labeled "Opuntia × dillenii," suggesting a hybrid origin, but no reference can be found in the literature to this name or suspected parents. Benson's reference to *dillenii* as a variety of the Cuban *O. stricta* does not seem to be merited. *Opuntia antillana* Britton & Rose (Brooklyn Bot. Gard. Mem. **1:** 73. 1918) is based on a collection from St. Kitts (*Rose, Fitch, & Russell 3230*) and appears to be a hybrid of *O. dillenii* and *O. triacantha*. On several islands *O. dillenii* also appears to hybridize with *O. rubescens*, producing a tree form with a cylindrical trunk and stout, yellow spines on the joints.

Opuntia elatior Miller, Gard. Dict. ed. 8, no. 4. 1768.

Lectotype: Dill., Hort. Eltham. **2:** *t. 294.* 1732; designated by Howard & Touw (1982).

Densely branched sturdy plants to 5 m tall with short, thick, cylindrical trunk; joints erect and spreading, obovate to oblong, 10-25 × 7-15 cm, thick, turgid, olive green, not readily detached; areoles with spines 2 to 8, acicular, terete or flattened, apex not noticeably retrorse-barbed, yellow-brown to dark brown. Flowers commonly found on face of joint; perianth segments 3-4 cm long, salmon-rose to orange-red; ovary globose to obovoid, 4-5 cm long, areoles with 1 or 2 spines and numerous glochids. Fruits oblongoid, 5-7 cm long, rounded at base, dark red in color.

GENERAL DISTRIBUTION: Curaçao, Venezuela, Colombia, Panama.

DISTRIBUTION IN LESSER ANTILLES: Saba!, Redonda!, Montserrat!.

COMMON NAME: French prickle.

NOTES: I suspect that many plants called *Opuntia tuna* in floras of the Lesser Antilles should be referred here. *Opuntia tuna* is a native of Jamaica and reported to be in cultivation, but few herbarium specimens have been seen.

Opuntia ficus-indica (L.) Miller, Gard. Dict. ed. 8, no. 2. 1768.

Basionym: *Cactus ficus-indica* L., Sp. Pl. **1:** 468. 1753.
Lectotype: *Houstoun s.n.* (BM!); designated by Howard & Touw (1982).

Much-branched, coarse plants to 4 m tall, often with jointed and slightly flattened trunks; joints erect, oblong to elliptic, 20-60 × 15-30 cm, thick; areoles small, without spines, glochids weak, yellow. Flowers with perianth segments bright yellow, 3-4.5 cm long, spreading; stamens shorter than petals; ovary globose in flower, 5 cm long. Fruits oblong, 7-10 cm long.

GENERAL DISTRIBUTION: Origin uncertain but widely planted in tropical countries and persisting.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Saba!, St. Eustatius!, Guadeloupe!.

COMMON NAMES: Figuier de Barbarie, tuna, Indian fig.

Opuntia rubescens Salm-Dyck ex DC., Prodr. **3:** 474. 1828, emend. Britton & Rose, Cact. **1:** 208. 1919.

Type: Neotype needed.
Syn.: *Consolea rubescens* (Salm-Dyck ex DC.) Lemaire, Rev. Hort. **1862:** 174. 1862.
Opuntia spinosissima sensu Duss, and various authors, not Miller (1768).

Erect, single-stemmed plant with slender, cylindrical trunks 3-6 m tall, flattened and branching above with spreading, ascending or descending elongated joints; stem spines in clusters of 15 to 20, to 10 cm long, commonly deflexed; joints oblong, 10-30 × 7-15 cm, thin, gray-green to reddish green; areoles with 1 to 6 acicular spines to 4 cm long, gray to white, glochids minute. Flowers mostly terminal, commonly proliferous in long chains; perianth yellow possibly aging to red-orange, petals to 2 cm long, spreading; ovary oblong, 2-3.5 cm long, areoles with spines. Fruits obovoid to subglobose, 5-8 cm long, persistent, turning red only after they have fallen.

GENERAL DISTRIBUTION: Puerto Rico, St. Croix, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts, Barbuda!, Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!.

COMMON NAMES: Raquette arborescente, signpost cactus.

NOTES: Plants with this treelike habit but shorter, golden, stout spines flattened at the base, similar to those of *O. dillenii*, are suspected to be hybrids of the two species. Occasional plants may have spines on the joints limited to the marginal areoles or greatly reduced in number, and plants with completely spineless joints have been reported in cultivation.

Opuntia triacantha (Willd.) Sweet, Hort. Brit. 172. 1826. FIGURE 151.

Basionym: *Cactus triacanthos* Willd., Enum. Pl. Suppl. 34. 1814.
Type: Neotype needed.

Stems erect and branched, to 1.5 m tall; joints oblong or elliptic-oblong, 6-12 × 2.5-6 cm, thin but turgid and linear-oblong in section, bluish green, growing in continuous series in one plane with occasional, single, upright joint produced, fragile for several terminal joints; areoles usually with 3 acicular spines to 4 cm long, noticeably retrorsely barbed at apex, white, glochids yellow, hairs brownish. Flowers few per joint, commonly on upper margin of horizontal pads or erect at point of branching; perianth segments 1.5-2 cm long, yellow to cream-colored; ovary obovoid, 2.5-3 cm long, areoles spineless but with numerous glochids. Mature fruits oblong, 2.5-3.5 cm long, 1-1.5 cm in diameter, bright red.

GENERAL DISTRIBUTION: Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis!, Redonda!, Montserrat!, Guadeloupe!, La Désirade!, Les Saintes!, St. Lucia!.

COMMON NAMES: Suckers, sucking cassie, jumping cassie, raquette volante.

NOTES: With *O. dillenii,* the most prolific cactus of the Lesser Antilles and the most troublesome. While the *Cactoblastus* moth has decimated many populations of *O. dillenii,* this species seems immune to the insect attacks. No cactus in the area is more troublesome to the collector because of the easily detached pads and the retrorse tips to the spines, which either tear the flesh on removal or leave behind organic material that inevitably festers.

Opuntia wentiana Britton & Rose, Cact. **1:** 116. 1919, nom. nov. for *Opuntia tunoides* Britton & Shafer ex Bold.

Replaced Syn.: *Opuntia tunoides* Britton & Shafer ex Bold., Fl. Dutch W. Ind. Is. 81. 1914, not Gibbes (1858).
Type: Curaçao, *Britton & Shafer 2904.*

Erect plants to 2 m tall, several pads developing from each subtending joint; joints obovate to elliptic, 10-25 × 7-15 cm, rounded at apex, flattened in section, pale green, slightly glaucous, readily detached; areoles with spines usually 3 to 5, rarely to 3 cm long, retrorse-barbed at apex, pale yellow becoming gray. Flowers with perianth segments to 3 cm long, fimbriate or shortly apiculate at apex, pale yellow; ovary obconical, usually 3 cm long. Fruits 3-5 cm long, dull red.

GENERAL DISTRIBUTION: Margarita, Aruba, Bonaire, Curaçao, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Grenada!.

PERESKIA Miller

Pereskia Miller, Gard. Dict. abr. ed. 4. 1754.

Leafy shrubs, trees, or clambering vines; spines in pairs or clusters in axils of true leaves, glochids wanting. Leaves alternate, petiolate; blades broad, flat, somewhat fleshy, more or less persistent. Flowers terminal or axillary, solitary or in corymbs or panicles, rotate; perianth conspicuous, colored; stamens numerous; style single, stigma lobes linear. Fruits fleshy, with or without areoles; seeds black, exarillate.

TYPE: *Cactus pereskia* L. = *Pereskia aculeata* Miller.

An unusual genus retaining true leaves with 16 species in the Greater Antilles, southern Mexico, Central and South America. For a recent revision see B. E. Leuenberger, Mem. New York Bot. Gard. **41:** 1-141. 1986.

NOTE: The generic name is often credited to Plumier, who named the plant in honor of Nicolaus Claudius Peireskius. Some recent authors have adopted the spelling of *Peireskia* for the generic name, a correction possible under the rules but not a necessary one.

KEY TO THE SPECIES

1. Climbing vines; stems with short pair of curved spines from each axillary areole; flowers white; fruits orange . . . . *P. aculeata*
1. Shrubs or trees; spines slender, straight; flowers pink or orange.
   2. Leaf apex acuminate; spines on young shoots 0.5-1 cm long; inflorescences few-flowered; perianth orange; fruits smooth without areoles. Cultivated . . . . *P. bleo*
   2. Leaf apex acute; spines on young shoots 1-4 cm long; inflorescences with up to 30 flowers; fruits with areoles and leaflike appendages. Cultivated . . . . *P. grandifolia*

Pereskia aculeata Miller, Gard. Dict. ed. 8. 1768. FIGURE 152.

Basionym: *Cactus pereskia* L., Sp. Pl. **1:** 469. 1753.
Lectotype: Dill., Hort. Eltham. **2:** *pl. 227, fig. 294.* 1732; designated by Leuenberger (1986).
Syn.: *Pereskia pereskia* (L.) Karsten, Deut. Fl. 888. 1882.

Shrub with long branches clambering or high-climbing; spines on young stems solitary or 2 or 3, slender and straight, on older stems recurved, paired. Leaves with petioles 3-7 mm long; blades lanceolate to oblong or ovate, 5-7 × 2-4 cm, base cuneate to rounded, apex short-acuminate, fleshy, smooth. Inflorescences panicles. Flowers with perianth white, pale yellow, or aging to pink. Fruits globose, 2.5-4.5 cm in diameter, smooth or with green leafy protuberances, light yellow to orange.

GENERAL DISTRIBUTION: West Indies, Venezuela, Guyana, Brazil, and Argentina; elsewhere in the tropics cultivated or escaped.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Antigua, Saba!, St. Eustatius, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent, the Grenadines, Barbados!.

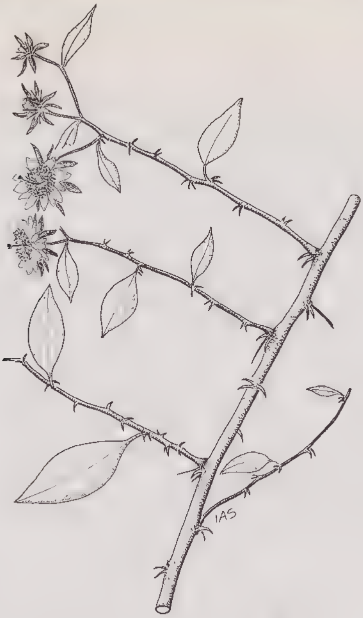
COMMON NAMES: Groseille-pays, groseille-Barbade, Barbados gooseberry.

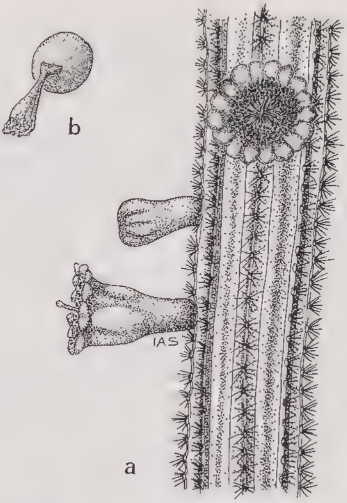
NOTE: In spite of the common name of Barbados gooseberry, the plant is not known today in a wild state in the Lesser Antilles.

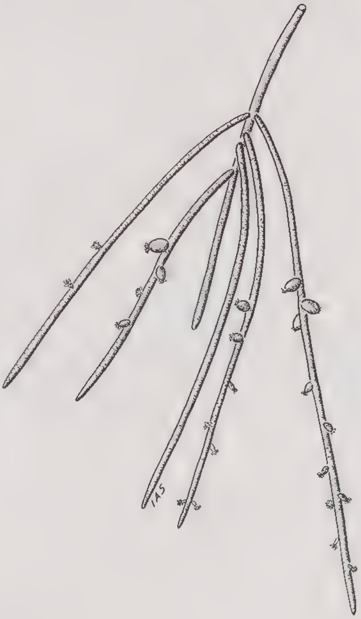
Pereskia bleo (Kunth) DC., Prodr. **3:** 475. 1828.

Basionym: *Cactus bleo* Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **6:** 56 (ed. folio), 69 (ed. quarto). 1823.
Type: Colombia, *Humboldt & Bonpland 1546* (lectotype, P, IDC 6209. 142: II. 5, photo!; isolectotype, B-W #9442, IDC 7440. **652:** III. 8, photo!); designated by Leuenberger (1986).

Tree to 7 m tall, young branches red, scurfy with peeling bark; spines in clusters of 5 or 6, young shoots with 1 to 4 black, acicular spines 0.5-1 cm long; areoles circular, bearing a little wool but soon naked. Leaves with petioles 2-3.5 cm long; blades oblong to oblanceolate, 16-21 × 4-5.5 cm, base cuneate, apex acuminate, thin, glabrous. Inflorescences few-flowered compact racemes. Flowers with calyx turbinate, angled, naked, with linear caducous sepals; petals 12 to 15, obovate, to 3.5 cm long, red to salmon; ovary







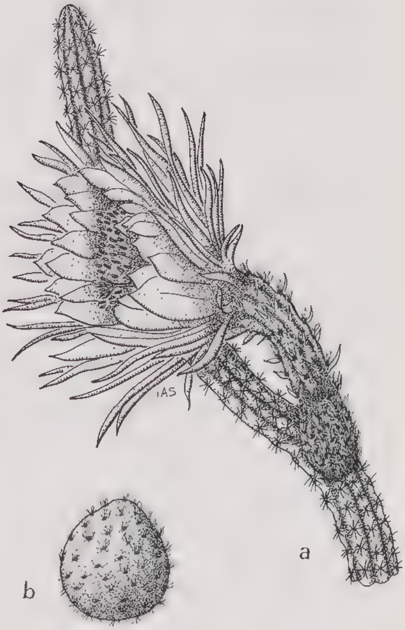


FIGURE 152 (upper left). *Pereskia aculeata*, × 0.4. FIGURE 153 (upper right). *Pilosocereus royeni*: a, stem, × 0.4; b, fruit, × 0.4. FIGURE 154 (lower left). *Rhipsalis baccifera*, × 0.4. FIGURE 155 (lower right). *Selenicereus grandiflorus*: a, flowering shoot, × 0.2; b, fruit, × 0.2.

depressed, style longer than stamens, stigma lobes 5 to 7. Fruits turbinate, 5-6 cm long, apex truncate, smooth without areoles, yellow when mature; seeds shiny.

GENERAL DISTRIBUTION: Panama, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Saba, St. Eustatius!, St. Kitts, Montserrat!, Guadeloupe!, St. Vincent!.

Pereskia grandifolia Haw., Suppl. Pl. Succ. 85. 1819.

Lectotype: Duncanson drawing (K).

Tree or shrub with long arching branches; spines on stem acicular, 1-4 cm long. Leaves with petioles 1-1.3 cm long; blades oblong or lanceolate-oblong, 8-15 × 3-6 cm, base cuneate, apex acute or obtuse, thin, shiny. Inflorescences terminal panicles, bearing up to 30 flowers but only a few open at a time. Flowers with inner perianth rose-purple. Fruits pyriform, areoles and leaflike appendages present.

GENERAL DISTRIBUTION: Widely planted in tropical areas.

DISTRIBUTION IN LESSER ANTILLES: St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!.

NOTE: Most plants seen have been in fence rows as escapes from cultivation, perhaps as living fence posts.

PILOSOCEREUS Byles & G. Rowley

Pilosocereus Byles & G. Rowley, Cact. Succ. J. Gr. Brit. **19:** 66. 1957.

Stout, erect, columnar or branched plants with stems usually 10-to 12-ribbed, spiny; flowering areoles usually more or less differentiated from the non-flowering, with long-woolly and bristly hairs forming dense beard or collar and commonly with longer spines, glochids wanting. Leaves wanting. Flowers nocturnal, sessile, short-tubular, funnelform or campanulate; hypanthium naked at ovary, scaly above, persistent in fruit; stamens numerous, inserted in hypanthium, a receptacular ring more or less covering and separating a nectar chamber. Fruits depressed-globose or turbinate, usually naked; seeds numerous, black, exarillate.

TYPE: *Pilocereus leucocephalus* Poselger = *Pilosocereus leucocephalus* (Poselger) Byles & G. Rowley.

A genus of 40 to 50 species in Mexico, Greater Antilles, northern South America to eastern Brazil.

NOTE: I am following the consensus opinion for the genera of Cactaceae (Bradleya **4:** 65-78. 1986) that proposes a monotypic status for *Cephalocereus* with *C. senilis*, a single species from eastern Mexico, recognized as the genus.

Pilosocereus royeni (L.) Byles & G. Rowley, Cact. Succ. J. Gr. Brit. **19:** 67. 1957. FIGURE 153.

Basionym: *Cactus royeni* L., Sp. Pl. **1:** 467. 1753.

Type: Neotype needed.

Syn: *Cereus nobilis* Haw., Syn. Pl. Succ. 179. 1812. (Type: Cultivated plant ex Ind. Occ.)

Cereus curtisii Hort. Berol. ex Pfeiffer, Enum. Diagn. Cact. 81. 1837. (Type: Grenada, based on Bot. Mag. **59:** *t. 3125.* 1832, presumably a specimen cultivated at Berlin.)

Pilocereus curtisii (Pfeiffer) Salm-Dyck, Cact. Hort. Dyck. **1844:** 24. 1845.

Pilocereus royeni (L.) Rümpler *in* F. Förster, Handb. Cakteenk. ed. 2, **2:** 682. 1885.

Pilocereus nobilis (Haw.) Schumann, Gesamtbeschr. Kakt. 189. 1897, in synonymy.

Pilocereus urbanianus Schumann, Gesamtbeschr. Kakt. 193. 1897. (Type: Guadeloupe, *Duss 3506*).

Cephalocereus nobilis (Haw.) Britton & Rose, Contr. U.S. Natl. Herb. **12:** 418. 1909.

Cephalocereus royeni (L.) Britton & Rose, loc. cit. **12:** 419. 1909.

Cephalocereus urbanianus (Schumann) Britton & Rose, loc. cit. **12:** 420. 1909.

Cephalocereus barbadensis Britton & Rose, Cact. **2:** 44. 1920. (Type: Barbados, *Rose, Russell & Nowell 21181* (NY).)

Pilocereus barbadensis (Britton & Rose) A. Berger, Kakteen 156. 1929.

Pilosocereus barbadensis (Britton & Rose) Byles & G. Rowley, Cact. Succ. J. Gr. Brit. **19:** 66. 1957.

Pilosocereus nobilis (Haw.) Byles & G. Rowley, loc. cit. **19:** 67. 1957.

Pilosocereus urbanianus (Schumann) Byles & G. Rowley, loc. cit. **19:** 69. 1957.

Stout plants of erect single stems or much branched from near base with short trunk to 30 cm in diameter; stems 2-8 m tall, glaucous blue or green, ribs 7 to 11; spines acicular, very variable in length and attitude, 1-8 cm long, golden, golden brown to gray or white; young areoles and flowering areoles with masses of long white hairs that turn tawny or brown in age or, on drying, subtending the flowers. Flowers ca. 5 cm long; hypanthium short and thick, greenish blue to yellow or red; inner perianth segments acute, white turning pink or purple. Fruits depressed-globose or turbinate, 5-7 cm in diameter, green, red or purple, pulp red; seeds shiny.

GENERAL DISTRIBUTION: Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, La Désirade!, Les Saintes!, Dominica!, Martinique!, St. Lucia!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Dildo, cierge, chardon, charderon, organ cactus.

NOTES: Britton & Rose (Cact. **2:** 44, 50. 1920) distinguish between *Cephalocereus nobilis* and *C. royeni* in a key, the stems being respectively light green to dark green versus blue or bluish green. In the species description *C. royenii* is described as having branches green to blue. They reported that the species occur together in the Virgin Islands and on Antigua and St. Kitts. A careful study of these very common plants from Puerto Rico to Grenada and Barbados revealed a great variation in size, color of the stem, length and color of the spines, and the color of the hairs at the flowering and fruiting areoles. Individual stems of single plants could easily be classified as one of the two species, and material representing the characteristics of any of the five species, here considered as one, could be collected from single plants.

RHIPSALIS Gaertner

Rhipsalis Gaertner, Fruct. Sem. Pl. **1:** 137. 1788, nom. cons.

Epiphytic hanging plants, stems terete, much-branched, many-jointed; areoles with scales representing leaves, naked, woolly, young plants occasionally with bristles, glochids wanting. Flowers diurnal, sessile, < 1 cm in diameter; perianth segments spreading, commonly persisting in fruit; style slender, stigmas lobed. Fruit a small berry, white, not scaly; seeds generally few, exarillate.

Type: *Rhipsalis cassutha* Gaertner = *Rhipsalis baccifera* (J. S. Miller) Stearn.

A genus of about 50 species in tropical and subtropical America, tropical Africa, Madagascar, Ceylon.

Rhipsalis baccifera (J. S. Miller) Stearn, Cact. Succ. J. Gr. Brit. **7:** 107. 1939.
Figure 154.

Basionym: *Cassyta baccifera* J. S. Miller, Ill. Syst. Sex. Linnaei Class IX, ord. 1. 1771-1777.
Type: Loc. cit. *t. 29.*
Syn.: *Rhipsalis cassutha* Gaertner, Fruct. Sem. Pl. **1:** 137. 1788. (Type: Loc. cit. *t. 28.*)

Epiphytic plant with pendant branches; stems 3-6 mm thick, often yellowish; areoles on young plants with soft bristles, later naked. Flowers solitary at terminal areoles; perianth segments 2 mm long, white, persisting in fruit. Fruits globose, 5 mm in diameter; seeds few, black.

General distribution: Greater Antilles, Virgin Islands.

Distribution in Lesser Antilles: Antigua!, Martinique.

Notes: Pinchon (D'Autres Aspects Nat. Antill. 170. 1971) reported finding the plant in a single location on Martinique and transplanting it to a garden where it grew well. No specimens have been seen, nor has the plant been relocated on Martinique.

John Miller, author of the basionym, is the anglicized name of Johann Sebastian Mueller, under which name his contributions to botany are catalogued in TL-2 (Stafleu & Cowan, 1981).

SELENICEREUS Britton & Rose

Selenicereus Britton & Rose, Contr. U.S. Natl. Herb. **12:** 429. 1909.

Slender, trailing, climbing, or clambering plants; stems 5- to 8-angled, adventitious roots developed; areoles small, with small, acicular spines, glochids wanting. Leaves wanting. Flowers nocturnal, sessile, small to large; hypanthium elongate and curved, with scales, hairs, or bristles; perianth segments many, narrow, outer green or brown, inner white; stamens in clusters, one scattered along hypanthium, others forming circle near top of throat; style elongate, slightly exserted, stigmas numerous, linear. Fruits small to large, red, covered with caducous spines, bristles, or hairs; seeds exarillate.

TYPE: *Cactus grandiflorus* L. = *Selenicereus grandiflorus* (L.) Britton & Rose.

A genus of 20 species of tropical and subtropical America.

KEY TO THE SPECIES

Flowers 18-25 cm long.................................... *S. grandiflorus*
Flowers 4-4.5 cm long.. *S. innesii*

Selenicereus grandiflorus (L.) Britton & Rose, Contr. U.S. Natl. Herb. **12:** 430. 1909. FIGURE 155.

Basionym: *Cactus grandiflorus* L., Sp. Pl. **1:** 467. 1753.
Type: LINN 633.1 or Hort Cliff. (BM).
Syn.: *Cereus grandiflorus* (L.) Miller, Gart. Dict. ed. 8, no. 11. 1768.

Slender-stemmed plants, climbing or clambering; stems about 2.5 cm in diameter, ribs 7 or 8, green or bluish green; areoles with acicular spines 1 cm long or less, whitish hairs numerous. Flowers 18-25 cm long; hypanthium covered with scales tipped with elongate brown hairs; outer perianth segments narrow, usually tan in color, inner segments acute, white; style often exserted. Fruits ovoid, 5-8 cm in diameter, red or yellow, covered with fleshy, hair-tipped scales, these often protruding from fruit, pulp white; seeds black.

GENERAL DISTRIBUTION: Linnaeus reported the plant to be from Jamaica and Veracruz. The type locality is now considered to be Jamaica. The plant is widely cultivated in tropical countries.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Saba!, St. Eustatius!, Guadeloupe!, Martinique!.

NOTES: This plant is often cultivated for its attractive nocturnal flowers, but it is also found in masses on stone walls and in wooded areas, where the very slender, young stems climb by adventitious roots and later form large masses in tree tops. In wooded areas it is a shy bloomer.

Selenicereus innesii Kimnach, Cact. Succ. J. (Los Angeles) **54:** 4. 1982.

Type: St. Vincent, *Innes s.n.*, HBG 46223 (holotype, HNT; isotypes A?, US).

Scandent or sprawling, much-branched plant; stems 12 mm thick, 5-or 6-angled; areoles hemispherical, 1 cm apart, with 1 or 2 median, yellowish brown spines and 3 to 7 thinner, marginal spines. Flowers 4-4.5 cm long; outer perianth segments linear-lanceolate, 5-15 mm long, inner perianth segments lanceolate, acute or cuspidate, white or cream; ovary yellowish green and red-tinged, areole hairs abundant, to 1 mm long, lower bracteoles deltoid, upper deltoid-lanceolate, 3-6 mm long, style 4-5 cm long. Fruits and seeds unknown.

GENERAL DISTRIBUTION: Endemic to St. Vincent.

NOTES: Kimnach described this species as having two flower forms, one clone producing pistillate flowers with unexpanding perianth and no stamens but with the "ovule chamber often partially filled with stylar and stigmatic tissue." The other clone produced "perfect flowers" with an expanded perianth, style, and stamens, but Kimnach offered no description of the ovary. Fruits and seeds are unknown in either form. Subsequently Parfitt (Sida 11: 200-206. 1985) questioned Kimnach's terminology and description of *S. innesii* as "dioecious" and concluded that this species had perfect flowers and abnormal sterile ones.

THYMELAEACEAE

by Allan J. Bornstein

THYMELAEACEAE A. L. Juss., Gen. Pl. 76. 1789. ('Thymelaeae').

Shrubs or trees, rarely herbs, with tough bark and flexible branches. Leaves alternate or opposite or irregularly pseudowhorled, simple, entire, penninerved; exstipulate. Inflorescences terminal, axillary, or extra-axillary, racemose, spicate, umbelliform, or capitate, pedunculate or sessile. Flowers regular, bisexual or unisexual (plants then dioecious); sepals 4 or 5, imbricate, petaloid, united to form a calyx tube (hypanthium); petals 4 or 5 (or wanting), small and commonly scalelike, nonpetaloid, adnate to calyx often near throat of hypanthium, the lobes alternisepalous; stamens as many as and opposite sepals, or twice as many and in 2 whorls, the upper whorl antisepalous, filaments short or wanting, anthers bithecate, introrse, longitudinally dehiscent; nectar disk annular to cupular or lobed, hypogynous; gynoecium 2- to 5-carpellate with as many locules as carpels, or more often pseudomonomerous with 1 locule, ovary superior with 1 pendulous ovule per locule, style simple or absent, stigma usually capitate. Fruit generally indehiscent, baccate or drupaceous, rarely a loculicidal capsule; seeds often arillate, with or without endosperm.

TYPE: *Thymelaea* Miller, nom. cons.

A family of 40 to 50 genera and about 500 species, cosmopolitan in distribution, but best developed in the southern hemisphere, particularly Australia and tropical Africa.

QUESTIONABLE RECORDS

Lagetta lagetto (Wright) Nash, the lace bark tree of Cuba, Jamaica, and Hispaniola, was cited as occurring on Guadeloupe by Mazé (Contr. Fl. Guadeloupe 52. 1892). This species has not been recollected on Guadeloupe, and its occurrence in the Lesser Antilles is doubtful.

The name of this species is commonly cited as *Lagetta lintearia* Lam. or *Lagetta lagetto* (Sw.) Nash. The Lamarck name is clearly a later synonym, having been published (Encycl. **3:** 376. 1792) after *Daphne lagetto* Sw. (Prodr. 63. 1788). Nash (J. New York Bot. Gard. **9:** 117. 1908) incorrectly credited the basionym to Swartz, apparently unaware that William Wright (London Med. J. **8:** 250. 1787) had previously described this species using the same name *Daphne lagetto.* Therefore, the correct name of this taxon is *Lagetta lagetto* (Wright) Nash.

DAPHNOPSIS C. Martius

Daphnopsis C. Martius, Nov. Gen. Sp. Pl. **1:** 65. 1824.

Dioecious shrubs or trees. Leaves alternate or pseudowhorled by contraction of internodes. Inflorescences simple and unbranched, or compound, multibranched structures, generally extra-axillary with vegetative growth continuing via axillary buds near base of fertile region, ultimate flower clusters umbelliform or racemose. Flowers 4-merous; calyx tube obconic to urceolate or campanulate, inconspicuously ribbed within, densely pubescent without; calyx lobes subequal; petals minute or wanting. Staminate flowers with 8 stamens borne in 2 whorls (diplostemonous), adnate to calyx tube and/or lobes, pistillode present. Pistillate flowers generally smaller than staminate, staminodia 8, 4, or absent, gynoecium pseudomonomerous, style terminal, stigma capitate. Fruit a drupe; seeds without endosperm.

TYPE: *Daphnopsis brasiliensis* C. Martius.

A neotropical genus of 45 to 50 species from central Mexico through Central America and the West Indies to South America as far south as Argentina-Uruguay. For additional information see L. I. Nevling, Ann. Missouri Bot. Gard. **46:** 257-363. 1959.

NOTES: According to the ING this genus was first described by Martius in "Flora 7(1), Beil. (4): 129-142. 1824." However, this publication, which in effect is a preprint of a portion of volume 1 of Martius' Nova genera et species plantarum, does not contain a description of *Daphnopsis.* Therefore, the first place of publication for this genus is correctly cited as indicated above.

The author of this genus is often cited as Martius & Zuccarini. According to the Stafleu & Cowan, (Tax. Lit. vol. 3, 1981), credit for new taxa should be given only to Martius.

KEY TO THE SPECIES

Inflorescences compound with 1 to several dichotomies; fruits 6-7.5 mm long; flowers > 10 per umbelliform cluster . . . . *D. americana* ssp. *caribaea*

Inflorescences simple, unbranched; fruits 2-3 cm long; flowers < 10 per umbelliform cluster . . . . *D. macrocarpa*

Daphnopsis americana (Miller) J. Johnston, Contr. Gray Herb. **34:** 242. 1909. FIGURE 156.

Basionym: *Laurus americana* Miller, Gard. Dict. ed. 8. 1768.
Type: Mexico, Veracruz, *Houston s.n.* (holotype, BM).

Daphnopsis americana (Miller) J. Johnston subsp. **caribaea** (Griseb.) Nevl., Ann. Missouri Bot. Gard. **46:** 315. 1959.

Basionym: *Daphnopsis caribaea* Griseb., Fl. Brit. W. Indian Is. 278. 1860.
Lectotype: Dominica, *Imray 118* (NY); probable isolectotypes (without collection number) (GH!, K); designated by Nevling, loc. cit.
Syn.: *Daphnopsis tinifolia* (Sw.) Meissner *in* DC., Prodr. **14:** 253. 1857, pro parte.

Shrub or tree to 15 m tall with bitter inner bark; stems sericeous, glabrescent. Leaves with petioles 4-12 mm long, sericeous; blades lanceolate to elliptic, ovate, or oblanceolate, 4.9-16.2 × 1.8-7.1 cm, base attenuate, apex acute to acuminate, chartaceous, glabrous. Inflorescences compound, dichotomously multi-branched structures, the ultimate flower clusters umbelliform, axes densely sericeous. Staminate flowers 10 to 75 per inflorescence, white to cream; calyx tube obconic, 3-4.5 mm long, puberulent without, glabrous within; calyx lobes broadly ovate to suborbiculate, reflexed, ca. 2-2.5 mm long, puberulent on both surfaces; stamens with subsessile anthers, antisepalous ones inserted on lobes just beyond calyx tube orifice, alternisepalous ones inserted at level of orifice; pistillode 1-2 mm long including short gynophore. Pistillate flowers 10 to 25 per inflorescence, white to cream; calyx tube urceolate, 1.5-2 mm long; calyx lobes broadly ovate to suborbiculate, reflexed, 1-1.5 mm long; staminodes 8, papilliform; pistil 1.5-2 mm long, glabrous. Fruits ovoid, 6-7.5 mm long, green becoming white; seeds ovoid, 4-6 mm long.

GENERAL DISTRIBUTION: Central America, Colombia, Venezuela, Puerto Rico, and the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis, Montserrat, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines, Grenada.

COMMON NAMES: Mahot-piment, mahot pimenté, maho piman, mahaut piment, maho pimente, mahaut, mahoe, maho, mahot blanc, pimenté, bitter mahoe.

NOTES: Nevling (loc. cit.) recognizes seven subspecies of the highly variable *D. americana* complex. Subspecies *caribaea* is distinguished by the calyx

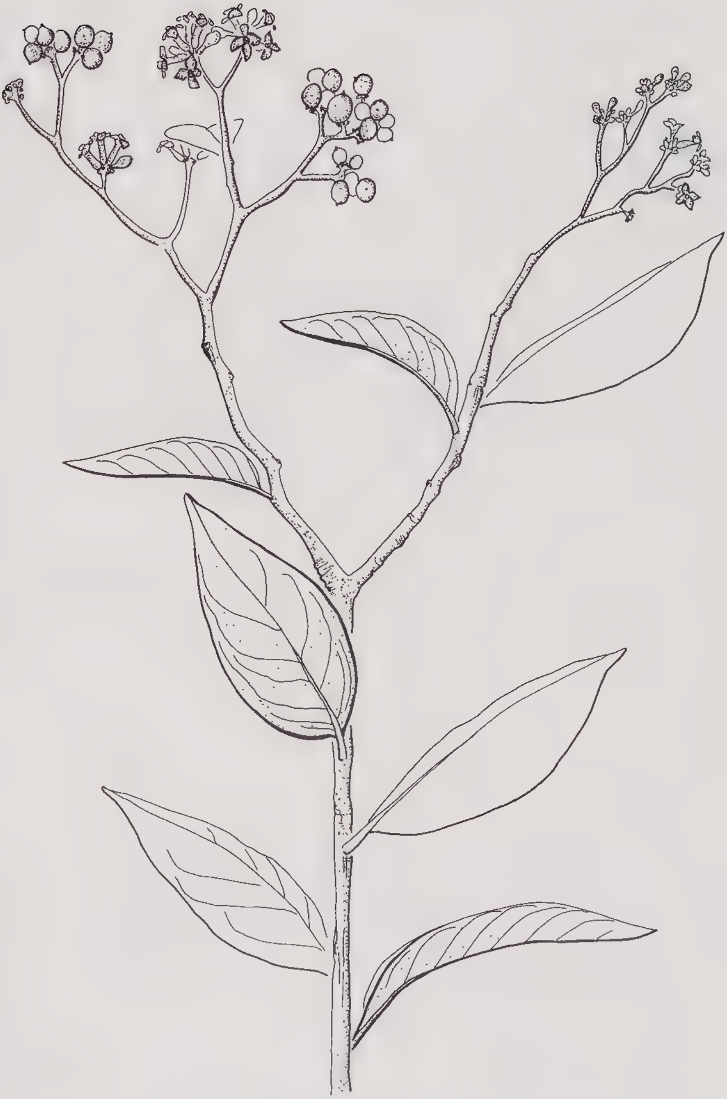


FIGURE 156. *Daphnopsis americana*, × 0.65.

tube longer than the pedicel and the generally profusely branched inflorescences.

Daphnopsis macrocarpa Nevl., Ann. Missouri Bot. Gard. **46:** 320. 1959.

Type: St. Lucia, Piton Flore, *Beard 497* (holotype, MO; isotypes, A!, K, MO, NY, W); see note below.

Shrub or small tree to 10 m tall, stems glabrous. Leaves with petioles 6-12 mm long, glabrous; blades oblanceolate to elliptic, 8.9-26.2 × 3.1-8.4 cm, base cuneate, apex caudate to acuminate, subcoriaceous, glabrous. Inflorescences simple, unbranched structures, umbelliform, glabrous. Staminate flowers 3 to 5 per inflorescence, white to cream or yellow-green; calyx tube obconic, 9-10.5 mm long, sericeous without, glabrous within; calyx lobes broadly ovate, reflexed, 1-1.25 mm long, puberulent on both surfaces; stamens with sessile anthers, 1-1.25 mm long, all borne within calyx tube; pistillode ca. 1.25 mm long, sessile, ± glabrous. Pistillate flowers 2 or 3 per inflorescence, cream-colored; calyx tube oblong, 5-6 mm long, sericeous without, glabrous within; calyx lobes broadly ovate, reflexed, 1-1.25 mm long, puberulent on both surfaces; staminodes lacking; ovary oblong-ovoid, ca. 2 mm long, style 2.5-3 mm long, stigma barely exserted beyond calyx tube. Fruits ellipsoid, 2-3 cm long, green becoming white; seeds ovoid-ellipsoid, ca. 1.5 cm long.

GENERAL DISTRIBUTION: Endemic to St. Lucia!.

COMMON NAMES: Mahot piment grand bois, maho piman gwan bwa.

NOTE: In the original publication of this species the holotype is cited as *Beard 479*, a typographic error for *Beard 497*.

LYTHRACEAE

Shirley A. Graham

LYTHRACEAE J. St. Hil., Expos. Fam. Nat. **2:** 175. 1805 ('Lythrariae').

Herbs, shrubs, or small trees, often with 4-angled stems. Leaves opposite, rarely subopposite to alternate, simple, entire; stipules occurring as minute processes in leaf axil. Inflorescences axillary racemes or cymes, or terminal panicles. Flowers regular or irregular, perfect, 4- to 6-merous, perianth and stamens perigynous; bracteoles 2, opposite on pedicels; hypanthia campanulate to tubular, persistent, often conspicuously nerved; calyx lobes 4 to 6, valvate, alternating with appendages at sinuses, or appendages none; petals 0 to 6, inserted on inner surface of floral tube between calyx lobes, crumpled, deep purple to pale pink or white, caducous; stamens generally as many as or twice as many as petals (but in *Cuphea* usually 11), rarely numerous, anthers versatile, introrse; ovary superior, free in floral tube, 2- to 4-(to 6-)locular, often surrounded at base by nectariferous disk, or in irregular flowers the disk on upper (adaxial) side only, placentation axile, style filiform or rarely wanting, stigma capitate. Fruits membranous or less often leathery capsules enclosed by persistent hypanthium, septicidally, septifragally, or loculicidally dehiscent, or indehiscent, splitting irregularly; seeds 3 to many, pyramidal, ovoid, or lenticular, < 1 to 4 mm long, lacking endosperm.

TYPE: *Lythrum* L.

About 27 genera and 450 species, distributed worldwide in the subtropics and tropics, with some genera extending northward or southward into temperate areas.

CULTIVATED SPECIES

Several shrub and small tree genera have been introduced into cultivation. *Ginoria rohrii* (M. Vahl) Koehne from the Greater Antilles and *Crenea maritima* Aublet from coastal northern South America were once grown on St. Vincent. *Lagerstroemia speciosa* (L.) Pers. (syn.: *L. flos-reginae* Retz.), the queen of flowers, is occasionally cultivated.

The herbaceous species *Cuphea melvilla* Lindley, introduced by Anderson from Guyana, is sometimes cultivated, as is the Mexican *C. ignea* DC. (*C. platycentra* Lemaire, 1846, non Benth., 1839; *C. micropetala* auct., non Kunth).

KEY TO THE GENERA

1. Hypanthium cylindrical, zygomorphic, in fruit about twice as long as wide . . . . *Cuphea*
1. Hypanthium campanulate to globose, actinomorphic, in fruit about as long as wide.
    2. Shrubs or small trees over 1 m tall.
        3. Flowers 4-merous; petals 4, white; stamens 8; fruits indehiscent; seeds nonwinged . . . . *Lawsonia*
        3. Flowers 6-merous; petals 6, rose-purple; stamens numerous; fruits dehiscent; seeds unilaterally winged . . . . *Lagerstroemia*
    2. Herbaceous annuals, or if perennial, woody at base only and generally less than 1 m tall.
        4. Leaves above midstem attenuate at base; flowers solitary in axils of leaves; capsule wall finely and densely transversely striate (as seen under a hand lens) . . . . *Rotala*
        4. Leaves above midstem cordate to auriculate at base; flowers (1 to) 3 to many in axils of leaves; capsule wall smooth . . . . *Ammannia*

AMMANNIA L.

Ammannia L., Sp. Pl. **1:** 119. 1753.

Amphibious or terrestrial, glabrous annuals. Leaves decussate, sessile; blades linear to lanceolate or oblanceolate, base cordate to auriculate, rarely attenuate. Inflorescences axillary cymes, pedunculate or sessile. Flowers (1 to)3 to 10 per cyme, 4(or 5)-merous, actinomorphic; hypanthia campanulate to urceolate, 2-6 mm long, becoming globose in fruit; calyx lobes 4(or 5), alternating with short appendages or appendages absent; petals 4 or 0, to 3 mm long, rose to pink or white, early deciduous; stamens 4(to 8); style thin, longer than ovary and exserted, or thick, shorter than ovary and included. Capsule walls smooth, not striate, 2- to 4(or 5)-locular, irregularly dehiscent; seeds numerous, ovoid, minute.

LECTOTYPE: *Ammannia latifolia* L.; vide N. L. Britton & A. Brown, Ill. Fl. N. U. S. ed. 2, **2:** 577. 1913.

A genus of ca. 25 species of amphibious herbs of worldwide temperate to tropical distribution, best represented in Africa. Five species occur in the western hemisphere. For more information and complete synonymy see S. A. Graham, J. Arnold Arbor. **66:** 395-420. 1985.

KEY TO THE SPECIES

1. Style short, thick, ca. 0.5 mm long or less, much shorter than length of ovary, included within hypanthium at anthesis; petals 0 to 4, pale pink to white.
  2. Hypanthium 4-6 mm in dia. in fruit; calyx lobes broad with minute mucronate to cucullate apex; appendages alternating with calyx lobes short, thick; petals 0 to 4 . . . . *A. latifolia*
  2. Hypanthium 1-2 mm in dia. in fruit; calyx lobes triangular with acute apex; appendages alternating with calyx lobes absent; petals 0 . . . . . *A. baccifera*
1. Style long, slender, mostly 1 mm long or longer, equal to half length of ovary or longer, well exserted at anthesis; petals 4(or 5).
  3. Peduncles filiform, 3-9 mm long; flowers commonly 7 per axil; fruits mostly 3 mm or less in dia.; petals deep rose-purple; plants delicate, slender . . . . *A. auriculata*
  3. Peduncles stout, 0-4(-9) mm long; flowers commonly 3 to 5 per axil; fruits mostly 3.5 mm or more in dia.; plants robust.
    4. Inflorescences sessile; flowers mostly 1 to 3 per axil; fruits 4-6 mm in dia.; petals pale lavender; anthers yellow . . . . *A. robusta*
    4. Inflorescence a short- to long-pedunculate cyme, rarely completely sessile; flowers mostly 3 or more per axil; fruits 3.5-5 mm in dia.; petals deep rose-purple; anthers deep yellow . . . . *A. coccinea*

Ammannia auriculata Willd., Hort. Berol. **1:** *pl. 7.* 1803.

Lectotype: Egypt (B-W #3081!; IDC 7440. 206: II. 5, photo!); designated by Graham (1985).

Slender annual 1-8 dm tall with branches ascending, progressively shorter toward top of stem. Leaves narrowly linear-lanceolate to linear-oblong, the largest 17-64 × 2-10 mm, base auriculate-cordate, clasping. Inflorescences axillary, multiflowered, simple or compound cymes; peduncles 3-9 mm long, filiform. Flowers with pedicels filiform; hypanthia 1-3 mm long at anthesis; calyx lobes alternating with minute thickened appendages; petals 4, usually ca. 1.5 mm long and wide, deep rose-purple; stamens 4(to 8), well-exserted; style filiform, exserted at same level as stamens. Capsules generally exceeding persistent hypanthium, 1.5-3(-3.5) mm in diameter.

GENERAL DISTRIBUTION: The most widely distributed species of the genus, occurring in Africa, Asia, Australia, the Americas and the Caribbean.

DISTRIBUTION IN LESSER ANTILLES: Antigua!.

Ammannia baccifera L., Sp. Pl. **1:** 120. 1753. FIGURE 157.

Lectotype: China, LINN 156.4.

Erect annuals to 1 m tall, much branched. Leaves lanceolate to oblanceolate, to 50(-70) × 10(-16) mm, base cuneate to truncate or slightly auriculate. Inflorescences axillary, sessile, densely flowered cymes. Flowers 3 to 15 or more per cyme; hypanthia narrowly tapering at base, in fruit 1-2 mm in diameter; calyx lobes sharply triangular with acute apex, appendages absent; petals wanting; stamens 4, included to barely exserted; style short, slender. Capsules generally exceeding persistent hypanthium.

GENERAL DISTRIBUTION: A species of Africa and Asia, recently introduced to the Caribbean in Jamaica and Guadeloupe.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, St. Lucia!.

NOTE: Misidentification of this species by Stehlé and Quentin (Fl. Guadeloupe **2**(3): 105. 1949) is the basis of the report of the Old World *A. verticillata* (Ard.) Lam. from Guadeloupe.

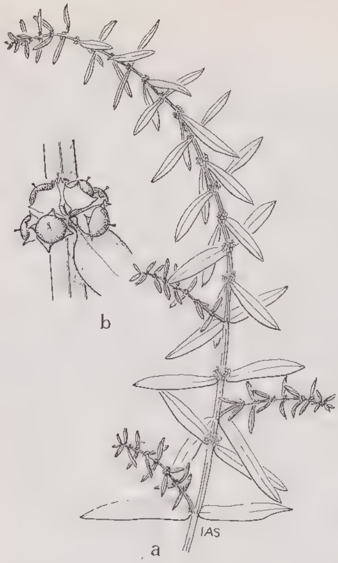
Ammannia coccinea Rottb., Pl. Horti Univ. Rar. Progr. (Hafn.) 7. 1773.

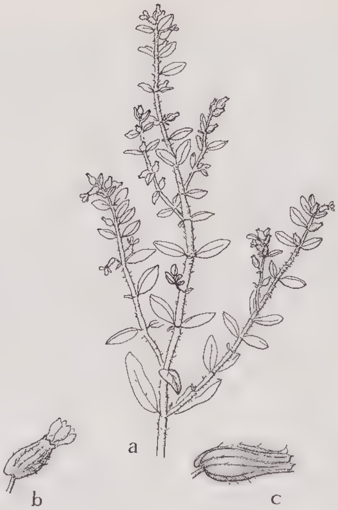
Neotype: Jamaica, St. Catherine Parish, *G. Proctor 18339* (NY!); designated by Graham (1985).

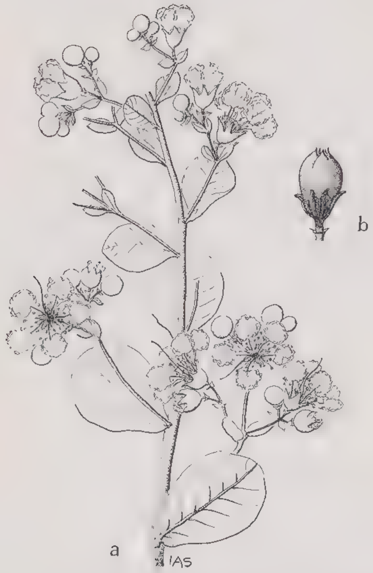
Robust annuals to 1 m tall, branching mainly above base, with branches shorter than main stem. Leaves linear-lanceolate to linear-oblong, rarely elliptic to spathulate, largest ones 20-80 × 2-15 mm, base auriculate to cordate, clasping. Inflorescences 3- to 5-(to 14-)flowered cymes with peduncles 0-9 mm long, sturdy. Flowers with pedicels mostly 2 mm long or less; hypanthia (2.5-)3-5 mm long; calyx lobes triangular, alternating with thickened appendages about equal in length to lobes; petals 4(or 5), mostly 2 mm long and wide, deep rose-purple, occasionally with dark purple spot at base; stamens 4(to 7), exserted, anthers deep yellow; style slender, exserted at anthesis. Capsules 3.5-5 mm in diameter, equal to or exceeding persistent hypanthium, rarely enclosed.

GENERAL DISTRIBUTION: Central United States from South Dakota to Texas, east to Ohio and North and South Carolina, coastal Florida, the Bahamas, Greater and Lesser Antilles, eastern Mexico to coastal northwestern South America; introduced and naturalized in California. Scattered occurrences in the Pacific from introductions through rice culture.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Guadeloupe!, Dominica!, Martinique, St. Vincent!, Grenada!, Barbados!.







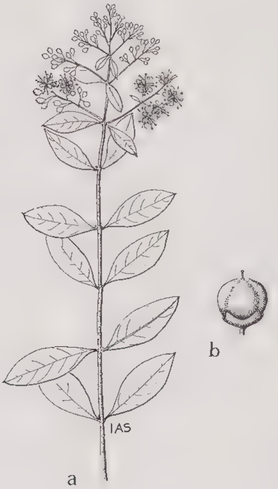


FIGURE 157 (upper left). *Ammannia baccifera*: a, habit, × 0.35; b, fruit, × 1.6. FIGURE 158 (upper right). *Cuphea carthagenensis*: a, flowering shoot, × 0.35; b, flower, × 2.0; c, fruiting calyx, × 2.0. FIGURE 159 (lower left). *Lagerstroemia indica*: a, flowering branch, × 0.35; b, fruit, × 0.35. FIGURE 160 (lower right). *Lawsonia inermis*: a, flowering branch, × 0.35; b, fruit, × 1.3.

NOTE: An amphidiploid species believed derived from *A. auriculata* and *A. robusta.* The species displays a morphological range approaching the parents at its extremes.

Ammannia latifolia L., Sp. Pl. **1:** 119. 1753.

Lectotype: LINN 156.1.

Robust annuals to 10 dm tall, unbranched or sparsely branched. Leaves linear-lanceolate, oblong, elliptic, or spathulate, 15-70(-100) × 4-15(-21) mm, mature ones mostly uniform in size, scarcely smaller toward stem apex, base of lower leaves cuneate, that of middle and upper leaves auriculate. Inflorescences axillary, closely flowered cymes; peduncles 0-3 mm long. Flowers (1 to)3 to 10 per cyme; hypanthia urceolate in bud; calyx lobes broad, apex minute, mucronate to cucullate, appendages alternating with lobes short, thick; petals 0 to 4(to 6), to 1 mm long, pale pink to white; stamens 4(to 8), included; style short, thick, 0.5 mm long. Capsules 4-6 mm in diameter, enclosed in or scarcely exceeding persistent hypanthium.

GENERAL DISTRIBUTION: Brackish to fresh water marshes along the Atlantic and Gulf coasts from New Jersey to Texas, throughout the Caribbean, and widely scattered in South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Nevis!, Guadeloupe!, Marie Galante!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAME: Herbe mauve.

NOTES: Plants with petals are more common in the northern part of the range where they have been recognized as *A. koehnei* Britton. Plants with the juvenile leaves predominantly spatulate have been given varietal status (*A. koehnei* Britton var. *exauriculata* Fern.). These features appear sporadically throughout the range of the species and preferably should not be recognized with formal taxonomic status.

Ammannia robusta Heer & Regel, Index Sem. Horto Bot. Turic. adn. 1. 1842.

Neotype: Brazil, Rio de Janeiro, *Glaziou 8340* (R!); designated by Graham (1985).

Robust annuals to 1 m tall, unbranched or branching from base, with lowest branches decumbent, often as long as main stem. Leaves linear-lanceolate, 15-80 × 4-15 mm, slightly fleshy, base auriculate-cordate, clasping. Inflorescences axillary, sessile cymes. Flowers 1 to 3(to 5) per cyme; hypanthia urceolate, often prominently 4-angled, ca. 3.5 mm long; calyx lobes broadly triangular, appendages thickened, equal to length of lobes; petals 4(to 8), ca. 2.5 × 3 mm, pale lavender, sometimes with rose-purple midvein or spot at base; stamens 4(or 5 to 12), exserted, anthers pale yellow to yellow; style long, slender, exserted. Capsules 4-6 mm in diameter, enclosed in or equal to persistent hypanthium.

GENERAL DISTRIBUTION: Central United States, eastern Mexico, sporadic occurrences in western United States and western Mexico. Introduced and naturalized in California. It is uncommon in the Caribbean and limited in South America to the coast of Brazil near Rio de Janeiro, where it was early introduced and naturalized.

DISTRIBUTION IN LESSER ANTILLES: Martinique!.

NOTES: Morphologically similar to and a parent species of *A. coccinea* with *A. auriculata*. Sometimes growing with either of these species, but easily identified in the field by the light-colored petals and anthers and 1 to 3 large capsules that are sessile at each axil.

CUPHEA P. Browne

Cuphea P. Browne, Civ. Nat. Hist. Jamaica 216. 1756.

Herbaceous annuals or short-lived perennials, generally with mixture of viscid-glandular and nonglandular hairs on stems, leaves, and flowers. Leaves sessile or petiolate; blades ovate, lanceolate-elliptic, or linear, membranous to coriaceous, often scabrous. Inflorescences leafy racemes, less commonly terminal, bracteate. Flowers 1 to 3 per node of raceme, one always interaxillary, 6-merous, homomorphic; hypanthia zygomorphic, 3-11(-33) mm long, rounded, gibbous, or distinctly spurred basally, green, purple, or red; calyx lobes 6, deltoid; petals 6, pale purple, purple, or purple-black; stamens 11 (rarely 4 or 7 to 9), upper (adaxial) 2 shorter and inserted deeper in hypanthium than the others; ovary incompletely 2-locular, appearing unilocular, with nectariferous disk at base. Capsules and persistent hypanthia splitting longitudinally along upper side at maturity, placenta projecting outward; seeds 3 to 20 or more, generally lenticular.

TYPE: *Cuphea decandra* Aiton.

The largest genus in the family with ca. 260 species, endemic to the New World, greatly diversified in Mexico and in temperate to subtropical Brazil. Distributed widely in the Americas and throughout the Caribbean area.

KEY TO THE SPECIES

1. Plants trailing or decumbent; stems simple or sparsely branched, 5-30(-40) cm long, bearing minute, white, stiff, appressed, antrorsely oriented hairs and sometimes also longer lax hairs; hypanthia 5 mm long.
    2. Leaves ovate with obtuse to cordate base; stamens 11 . . . . . . *C. melanium*
    2. Leaves elliptic with acute base; stamens 8 (4 to 9) . . . . *C. parsonsia*
1. Plants erect; stems much branched, commonly woody at base, 10-130 cm long, bearing a variety of hair types but lacking appressed, antrorsely oriented hairs; hypanthia 3-11 mm long.

3. Leaves linear-lanceolate, 5-30 × 4-8 mm, glabrous, shiny; plants compact shrubs with numerous short branches; flowers on persistent pedicels 3-8 mm long . . . . *C. hyssopifolia*
3. Leaves lanceolate, ovate, or elliptic, mostly 20 mm long or longer; plants ascending-spreading; flowers sessile or subsessile, on pedicels 0-2(-4) mm long.
    4. Hypanthia 11 mm long, with incurved spur 2 mm long; petals 8 mm long; stamens equal to or exceeding hypanthium . . . . *C. crudyana*
    4. Hypanthia 3-9 mm long; petals 1-3 mm long; stamens all deeply included in tube or longest barely reaching sinuses of calyx lobes.
        5. Apex of hypanthium broadly flaring at anthesis, base distinctly spurred; spur curving downward toward pedicel, ca. 1 mm long; seeds 6 to 13, usually 7 or more . . . . *C. strigulosa*
        5. Apex of hypanthium about as wide as rest of tube at anthesis, base gibbous or barely spurred; seeds 3 to 6.
            6. Leaves broadly elliptic to ovate-lanceolate; petioles of lower leaves 1-10 mm long; blades glabrous or minutely scabrous, sometimes also with scattered, long, lax, white hairs; seeds orbicular to elliptic, encircled by a thin narrow wing . . . . *C. carthagenensis*
            6. Leaves narrowly lanceolate to narrowly elliptic; petioles 0-3 mm long; blades with dense, long, lax hairs; seeds cordiform, narrowed to point of attachment, margin rounded, not winged . . . . *C. micrantha*

Cuphea carthagenensis (Jacq.) J. F. Macbr., Publ. Field Columbian Mus., Bot. Ser. **8:** 124. 1930. FIGURE 158.

Basionym: *Lythrum carthagenense* Jacq., Enum. Syst. Pl. 22. 1760; Select. Stirp. Amer. Hist. 148. 1763.

Type: Colombia, near Cartagena, *Jacquin s.n.*, specimen unknown.

Syn.: *Cuphea balsamona* Cham. & Schldl., Linnaea **2:** 363. 1827. (Type: Not selected.)

Herbaceous short-lived perennials, ascending-spreading, woody at base, 10-50 cm tall; branches alternate, slightly geniculate, length of branches and leaves often variable along stem. Leaves with petioles 1-10 mm long; blades broadly elliptic to ovate-lanceolate, to 40 × 20 mm, glabrous or minutely scabrous, sometimes also with scattered lax hairs to 1 mm long. Flowers inconspicuous in leafy racemes, 1 to 4 per node on pedicels 0-2 mm long; hypanthia 4.5-7 mm long, with basal spur < 1 mm long, greatly swollen in fruit, green or green-purple with few, glandular, stiff hairs mostly on ribs; petals 6, purple; stamens 11, deeply included; disk erect, slightly taller than wide. Seeds 3 to 6, orbicular to elliptic, encircled by a thin, narrow, pale wing.

GENERAL DISTRIBUTION: Natural range approximately southern Mexico to Argentina, but widespread in the New World subtropics and tropics; adventitious in Hawaii, Guam, the Fiji Islands, and occurring coastally in eastern United States to North Carolina.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Barbados.

NOTES: This coarse, much branched shrublet is the most widespread species of the genus. It occurs in waste places, pastures, and roadsides. It is closely related to and sometimes confused with *C. micrantha*.

Cuphea crudyana Koehne, Repert. Spec. Nov. Regni Veg. **8:** 16. 1910.

Type: Santa Lucia, *Crudy s.n.* (ex. Herb. Schwaegrichen). (lectotype, M!.)

Shrubby perennials. Leaves with petioles 4-8 mm long, glabrous; blades oblong-lanceolate, 23-36 × 7-10 mm, narrowly attenuate. Flowers solitary, interpetiolar, on pedicels 2-3 mm long; hypanthia thick, 11 mm long including a downward curving spur 1-2 mm long, minutely puberulent; petals 6, 8 mm long; stamens equal to or exceeding hypanthium; ovary with disk thick, wider than tall, ovules 10.

DISTRIBUTION: Endemic to St. Lucia.

NOTES: Known only from the two sheets collected ca. 1784. It was considered by the monographer of the genus as a ''remarkable endemic'' most similar to *C. lobelioides* Griseb. of Cuba. Probably now extinct.

Cuphea hyssopifolia Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **6:** 157 (ed. folio). 1823; 199 (ed. quarto). 1824.

Type: Mexico, near Xalapa, *Humboldt & Bonpland 4435* (P, IDC 6209. 149: III. 4, photo!; B-W #9199, IDC 7440. 635: II. 3, photo!).

Erect, much-branched, shrubby perennials, 20-70 cm tall. Leaves subsessile; blades narrowly lanceolate to linear or oblanceolate, 5-30 × 4-8 mm, not reduced in size in the inflorescence, shiny on upper surface, glabrous. Flowers in leafy racemes, alternate, solitary at nodes, on pedicels 3-8 mm long; persistent hypanthia 5-7 mm long with rounded base, scarcely swollen in fruit; petals 6, subequal, 3-5 mm long, purple, pink, or white; stamens 11, longest barely reaching base of sinuses of calyx lobes; ovary with disk erect, enlarged at apex, ovules 5 to 8. Seeds generally 6, orbicular in outline, 1 mm long.

GENERAL DISTRIBUTION: Mexico to Panama.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, St. Lucia!.

COMMON NAME: Heather.

NOTE: Cultivated widely as a small hedge in tropical and subtropical areas.

Cuphea melanium (L.) R. Br. ex Steudel, Nomencl. Bot. ed. **1:** 245. 1821.

Basionym: *Lythrum melanium* L., Syst. Nat. ed. 10, **2:** 1045. 1759.
Type: Jamaica, *P. Browne*, authentic specimen unknown.

Lax perennial herbs 5-25 cm long, slender, mostly unbranched, trailing from woody rootstock, bearing minute, appressed, antrorsely oriented hairs. Leaves sessile or subsessile; blades ovate, 6-10 × 2-5 mm, mostly shorter than internodes, gradually reduced in size in the inflorescence, base cordate to obtuse, thick, glabrous above, with sparse, minute, appressed hairs beneath. Flowers in simple or compound leafy racemes, alternate and solitary on pedicels 2-3 mm long; hypanthia 5 mm long with base barely spurred, sparse, short, glandular hairs on ribs; petals 6, equal, 3 mm long, rose-purple; stamens 11, deeply included in tube, not reaching sinuses of lobes; ovary with disk erect, broadly attached, ca. as long as wide, keeled. Seeds 4 to 6.

GENERAL DISTRIBUTION: Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Dominica!.

Cuphea micrantha Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. **6:** 155 (ed. folio). 1823; 196 (ed. quarto). 1824.

Type: Venezuela, Orinoco River near Santa Barbara, *Humboldt & Bonpland s.n.* (holotype, P; IDC 6209. 149: II. 6, photo!).

Herbaceous annuals 10-30 cm tall, ascending-spreading; stems much branched. Leaves with petioles 0-3 mm long; blades narrowly lanceolate to narrowly elliptic, 5-30 × 3-10 mm, base obtuse, upper and lower surfaces with dense, lax, white hairs 0.5-1 mm long. Flowers in indistinct leafy racemes, 1 to 3 per node on pedicels 1 mm long; hypanthia 4-6 mm long, gibbous basally; petals 6, 1.5-2 mm long, purple; stamens 11, deeply included; ovary with disk wider than tall, slightly deflexed and keeled, style included at maturity. Seeds 3, cordiform, narrowed to point of attachment, broadest above middle, not winged.

GENERAL DISTRIBUTION: Southern Mexico to Central America, northern South America to Brazil, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Barbados!.

NOTES: A widespread ruderal species. In some Central American locations distinguished with difficulty from *C. carthagenensis.* The combination of 3 cordiform seeds and long hairs on both leaf surfaces provides good distinguishing characters.

Cuphea parsonsia (L.) R. Br. ex Steudel, Nomencl. Bot. ed. **1:** 245. 1821.

Basionym: *Lythrum parsonsia* L., Syst. Nat. ed. 10, **2:** 1045. 1759.
Type: P. Browne, Civ. Nat. Hist. Jamaica *t. 21, fig. 2.* 1756.

Perennial herbs with trailing to erect stems to 40 cm long, arising from fibrous roots; stems unbranched or with several branches shorter than main stem, bearing minute, appressed, antrorsely oriented hairs. Leaves sessile or subsessile; blades elliptic, rarely ovate, 10-20 × 7-10, largest at mid-stem, decreasing in size toward top and bottom of stem, base acute, finely scabrous, macroscopically glabrous. Flowers in leafy racemes on pedicels to 1 mm long; hypanthia 5 mm long, gibbous basally, in fruit much swollen, neck narrowed, closed, outer surface with minute, stiff, appressed hairs, especially on ribs; petals 6, subequal, 1 mm long, purple-rose; stamens (4 to)8(or 9), deeply included; ovary with disk erect, broadly attached at base, slightly keeled. Seeds 4 to 7, oblong-orbicular, 1.5 mm long, narrowly winged.

GENERAL DISTRIBUTION: Greater Antilles and Lesser Antilles.

Distribution in Lesser Antilles: Martinique!, Dominica!.

Cuphea strigulosa Kunth *in* Humb., Bonpl., & Kunth, Nov. Gen. Sp. Pl. **6:** 161 (ed. folio). 1823; 204 (ed. quarto). 1824.

Type: Colombia, Ibaque, *Humboldt & Bonpland 1803* (holotype, P; IDC 6209. 150: I. 3, photo!).

Shrubby perennials 20-130 cm tall, ascending-spreading, much-branched, branches variable in length along stem. Leaves sessile or with petioles to 2 mm long; blades ovate to elliptic or oblong, 15-35 × 5-15 mm, base narrowly attenuate, apex acute to short-acuminate, scabrous with minute, stiff, appressed hairs, upper surface often shiny. Flowers in indistinct leafy racemes, 1(to 3) per node on pedicels 1-4 mm long; hypanthia 6-9 mm long with broadly flaring mouth and downward curving spur 1 mm long; calyx lobes frequently alternating with thickened appendages, each bearing single bristle; petals 6, subequal, 1-3 mm long, purple; stamens 11, the ventral 9 variable in length, just reaching sinuses of lobes or sometimes much shorter; ovary with disk thick, broadly attached. Seeds 6 to 13, generally 7 or more, orbicular, 2 mm long, encircled by narrow, sharp-edged wing.

General distribution: Widely distributed in the Caribbean, northwestern South America to Peru, and on the east coast of Brazil to Rio de Janeiro.

Distribution in Lesser Antilles: Dominica!.

Notes: An unattractive weed with spreading branches, often appearing in gardens, along roadsides, or in openings in woodlands. Subsp. *opaca* Koehne is described as 30-50 cm long, stamens included, ovules 6 to 8(to 12); subsp. *nitens* Koehne, as up to 130 cm long, stamens reaching the margin of the hypanthium, ovules (7 to)12 or 13, and leaves more shiny than subsp. *opaca*. Both are said to occur on Dominica. There is much morphological variation in the species, and the subspecies may well be indistinguishable when more extensive collections are studied.

Doubtful Species

Cuphea denticulata Kunth is cited by Grisebach (as *C. trinitatis* DC. in Fl. Brit. W. Indian Is. 270. 1860) and by Koehne (as *C. multiflora* Lodd. *in* Engl., Pflanzenr. IV. **216**(Heft 17): 108. 1903) from St. Vincent on the basis of a collection by Guilding. *Cuphea denticulata* is native to northern South America. No other collections are known from the Lesser Antilles. The specimen cited by Grisebach and Koehne is possibly material Anderson brought from Guyana to the St. Vincent Botanic Garden, although it is not listed in his Hortus notes (fide R. A. Howard).

LAGERSTROEMIA L.

Lagerstroemia L., Syst. Nat. ed. 10, **2:** 1068, 1076, 1372. 1759.

Shrubs to tall trees. Leaves more or less alternate, sessile or short-petiolate. Inflorescences terminal or axillary panicles. Flowers showy; hypanthia actinomorphic, semiglobose to pyriform, generally 6-merous; petals (5 or)6 or more, long-clawed, much crinkled, purple, rose or white; stamens numerous, inserted near base of tube, filaments long, slender, exserted. Capsules ellipsoid or oblong, 3- to 6-locular, chartaceous; seeds pyramidal, unilaterally winged.

TYPE: *Lagerstroemia indica* L.

A genus of about 53 species occurring primarily in eastern Asia. Some are large forest trees that are lumbered.

Lagerstroemia indica L., Syst. Nat. ed. 10, **2:** 1076. 1759. FIGURE 159.

Type: Rumph., Herb. Amboin. 7: 61, *t. 28, fig. 1.* 1755; fide 7: Merrill.

Shrubs or small trees with gray bark flaking in plates. Leaves obovate or oblong-elliptic, 1-6 × 0.5-4 cm, generally glabrous at maturity. Inflorescences terminal open panicles. Flowers on pedicels 3-15 mm long; hypanthia subglobose, 5-10 mm long; calyx lobes (5 or)6(or 7), shorter than tube; petals 10-20 mm long; stamens dimorphic, those on sepals solitary, with long filaments and red anthers, the others below petals, clustered with shorter filaments and yellow anthers. Capsules loculicidal.

GENERAL DISTRIBUTION: Native to east Asia. Introduced and extensively cultivated throughout warm regions of the world as a street or garden tree.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Martinique!, St. Vincent!, Barbados!.

COMMON NAME: Crepe myrtle.

LAWSONIA L.

Lawsonia L., Sp. Pl. **1:** 349. 1753.

Shrubs or small trees 1-7 m tall with stiff, divaricate, grayish brown branches, rarely the branches short, spinelike. Leaves opposite, obovate to elliptic, narrowly attenuate at base, shiny, glabrous; base flanked on each side by single, whitish, stipulelike process. Inflorescences axillary and terminal, compound, pyramidal, multiflowered panicles. Flowers fragrant, turbinate in bud, 4-merous, ca. 5 mm long; calyx lobes 4, equal to at least one-half length of hypanthium, slightly spreading at anthesis, red-purple; petals 4, alternating with sepals, 3-4 mm long, much crinkled, yellow, cream, or white; stamens 8, in pairs at base of sepals, exserted; ovary 2- to 4-locular, style exserted, persistent. Capsules globose, indurate, splitting irregularly; seeds numerous, pyramidal.

LECTOTYPE: *Lawsonia inermis* L.; vide N. L. Britton & C. F. Millspaugh, Bahama Fl. 299. 1920.

A monotypic genus cultivated for centuries in Africa and Asia for the henna dye prepared from the leaves; planted in warm regions for the fragrant, showy inflorescences.

Lawsonia inermis L., Sp. Pl. **1:** 349. 1753. FIGURE 160.

Type: LINN 496.1.

Densely branched shrubs to 3 m tall, branches terete. Leaves with petioles 1-2 mm long; blades obovate to elliptic, 2-5 × 1-2 cm. Panicles 5-15 cm long. Flowers with petals oblong, 4 × 3 mm, white; stamens exceeding petals; style 4 mm long. Capsules 5-8 mm in diameter, tan; seeds ca. 50 to 70, 2 mm long, flattened, brown.

GENERAL DISTRIBUTION: Probably of East African or Asian origin but now grown widely throughout the tropics and frequently escaped and naturalized.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Barbados!.

COMMON NAME: Henna, reseda, copiae.

ROTALA L.

Rotala L., Mant. Pl. alt. 175. 1771.

Aquatic to terrestrial, mostly annual, glabrous herbs, to 4 dm tall. Leaves opposite or whorled, mostly sessile, linear to spathulate, base attenuate. Flowers solitary in axils or in terminal racemes; hypanthia campanulate to globose or urceolate, actinomorphic, 2-5 mm long; calyx lobes (3 or)4(to 6), appendages present or absent between lobes; petals 0 to 6, minute or showy, white to pink; stamens generally as many as calyx lobes. Capsules 2- to 4-locular, septicidally dehiscent, with microscopic, dense, transverse striations on outer wall; seeds numerous or few, minute.

TYPE: *Rotala verticillaris* L.

About 44 species of worldwide distribution with greatest number of species in Africa and Asia.

Rotala ramosior (L.) Koehne *in* C. Martius, Fl. Bras. **13**(2): 194. 1877. FIGURE 161.

Basionym: *Ammannia ramosior* L., Sp. Pl. **1:** 120. 1753.
Type: North America, Virginia, *Clayton 774* (BM).

Amphibious or terrestrial annuals 5-40 cm tall. Leaves opposite, subsessile; blades linear to oblanceolate, 10-50 × 2-12 mm. Flowers axillary, sessile, subtended at base by bracteoles less than one-half length of

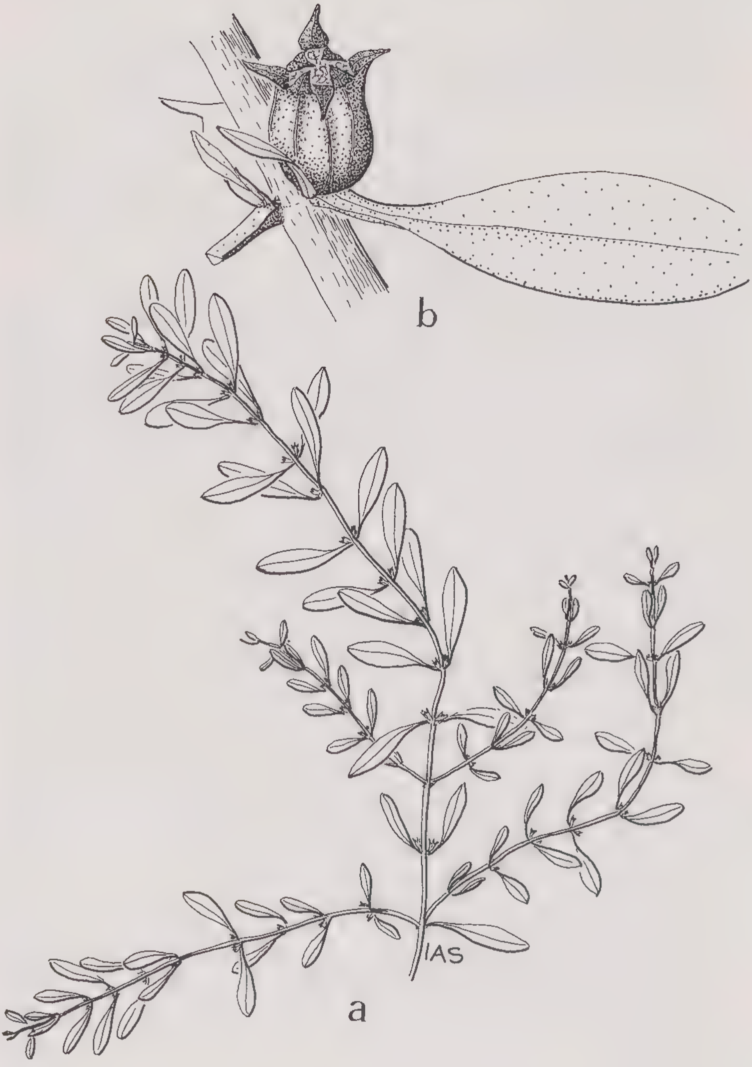


FIGURE 161. *Rotala ramosior*: a, habit, × 0.7; b, fruit, × 5.0.

hypanthium; hypanthia 2-5 mm long; calyx lobes alternating with triangular appendages; petals 0 or 4, to 0.5 mm long; stamens 4, inserted near base of hypanthium. Capsules globose, golden brown, enclosed in hypanthium; seeds numerous, ca. 1 mm long.

GENERAL DISTRIBUTION: A widespread American species of temporally inundated areas, now also naturalized in rice fields of Europe and Asia.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, Barbados!.

PUNICACEAE

by Allan J. Bornstein

PUNICACEAE Horan., Prim. Lin. Syst. Nat. 81. 1834.

Shrubs or small trees with branch apices commonly modified into thorns. Leaves principally opposite or subopposite, occasionally fasciculate on short shoots, simple, entire, penninerved; stipules vestigial or wanting. Flowers terminal or axillary, solitary or clustered at branch apices, regular, perfect, epigynous, short-pedunculate; hypanthium turbinate, prolonged beyond ovary; calyx leathery, valvate, persistent, of 5 to 8 sepals; petals as many as and alternate with sepals, imbricate and wrinkled in bud; stamens numerous in several series, inserted on hypanthial tube, filaments filiform, distinct, anthers versatile, bithecate, dehiscent by longitudinal slits; gynoecium multicarpellate (mostly 7 to 9), ovary inferior, multilocular, the locules superposed in 2 (or 3) rows, the upper with parietal, the lower with axile placentation, each containing numerous ovules, styles united, stigma capitate. Fruit a berry with leathery rind and membranous septae, crowned by persistent calyx; seeds numerous, embedded in juicy pulp, endosperm wanting.

TYPE: *Punica* L.

A monotypic family with only two species, native from southeastern Europe to the Himalayas and the island of Socotra; cultivated and occasionally naturalized elsewhere.

PUNICA L.

Punica L., Sp. Pl. **1:** 472. 1753.

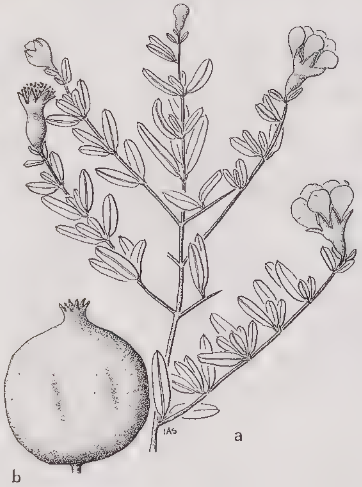
Characters and distribution of the family.

TYPE: *Punica granatum* L.

Punica granatum L., Sp. Pl. **1:** 472. 1753. FIGURE 162.

Type: Not designated.

Shrub or small tree to 6 or 7 m tall. Leaves with petioles 2-7 mm long, glabrous; blades oblong, elliptic, lanceolate, or oblanceolate, 1.1-8.1 × 0.4-2.2



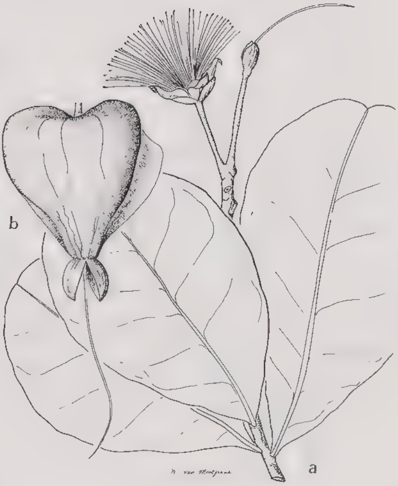


FIGURE 162 (left). *Punica granatum*: a, flowering branch, × 0.3; b, fruit, × 0.2. FIGURE 163 (right). *Barringtonia asiatica*: a, flowering branch, × 0.3; b, fruit, × 0.2.

cm, base cuneate to obtuse, apex acute to obtuse, typically mucronulate, midvein prominent beneath, chartaceous, glabrous. Flowers with hypanthium 1.5-2.5 cm long, red, becoming black upon drying; sepals triangular, 6-8 mm long, reddish, densely puberulent along inner margins; petals suborbiculate to obovate, short-clawed, to 2.5 cm long, scarlet or rarely white; stamens with filaments 4-10 mm long, anthers broadly elliptic, ca. 1 mm long; style columnar, ca. 8 mm long. Fruits globose, 5-10 cm in diameter; seeds ovoid-angular, 6-7 mm long, embedded in pink to red, juicy pulp.

GENERAL DISTRIBUTION: As for the family.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts, Antigua, Saba, St. Eustatius, St. Kitts!, Montserrat!, Guadeloupe, Martinique, St. Lucia!, St. Vincent, Barbados.

COMMON NAMES: Pomegranate, pamgramma, ponm gwennad, grenade, grenadier.

NOTES: The pulp of the fruit is edible and the fermented product is used to make grenadine. Various parts of the plant are used medicinally.

LECYTHIDACEAE

by Allan J. Bornstein

LECYTHIDACEAE Poit., Mém. Mus. Hist. Nat. **13:** 143. 1825 ('Lecythidaeae').

Trees or shrubs. Leaves alternate, simple, entire to toothed; stipules wanting or small and caducous. Inflorescences axillary or terminal racemes or panicles, or the flowers solitary. Flowers perfect, regular or irregular, commonly large and showy; calyx of 2 or 4 to 6 valvate or imbricate sepals; petals 4 to 6 or 8, distinct, imbricate, or wanting; stamens numerous, connate at base to form a staminal ring, the ring actinomorphic or zygomorphic by prolongation on one side into a straplike ligule that arches over the ovary as a hood, in apetalous taxa with outermost stamens modified into a petaloid corona, anthers basifixed, bithecate, dehiscent by longitudinal slits or apical pores; intrastaminal disk present or absent; ovary inferior or semi-inferior, 2- to 6-carpellate and -locular, ovules 1 to many per locule, placentation axile, style simple, stigma capitate or lobed. Fruit most commonly a circumscissile capsule with distal operculum, or an indehiscent berry or drupe; seeds one to many, often with funicular aril, without endosperm.

TYPE: *Lecythis* Loefl.

A pantropical family of approximately 20 genera and 400 species. Best developed in terms of number of genera and species in tropical America, especially South America, but well represented in the Old World from Africa to Asia, Malaysia, Australia, and the Pacific Islands. For additional information, especially concerning the New World taxa, see G. T. Prance and S. A. Mori, Fl. Neotropica Monogr. **21:** 1-270. 1979.

NOTE: The Lecythidaceae are not a part of the native vegetation in the Lesser Antilles. With the exception of *Barringtonia*, which has become partially naturalized on some of the larger islands, all of the taxa known to occur in our area are under cultivation, primarily in botanic gardens. A key to the species is provided, followed by pertinent nomenclatural information and a brief description for each.

KEY TO THE SPECIES

1. Androecium actinomorphic (without prolonged ligule and hood).
    2. Petals absent; corona of staminal origin present in several series; leaves and calyx lobes with marginal (or submarginal) glands .... *Napoleonaea imperialis*
    2. Petals present; corona absent; leaves and calyx lobes eglandular.

    3. Petals 4; calyx of 2 sepals; fruits ovate, sharply tetragonous, > 8 cm long, with one seed; style 10-13 cm long; anthers with longitudinal slits . . . . *Barringtonia asiatica*
    3. Petals 6 or 8; calyx entire or shallowly 4-lobed; fruits globose, apically truncate, < 8 cm long, with several seeds; style < 5 mm long; anthers with apical pores . . . . *Gustavia augusta*

1. Androecium zygomorphic (with staminal ring prolonged into a ligule that arches over the ovary as a hood).
    4. Appendages of hood fertile (bearing anthers); ovary 6-locular; fruits indehiscent; inflorescences pendant from branches arising from trunk . . . . *Couroupita guianensis*
    4. Appendages of hood sterile or with only those of proximal section fertile; ovary 4-locular; fruits dehiscent by operculum; inflorescences borne in canopy of tree.
        5. Floral buds enclosed by calyx; calyx 2-lobed at anthesis; style > 1 cm long; fruits with seeds retained within until pericarp disintegrates; seeds 3-angled, without basal funicle-aril . . . . *Bertholletia excelsa*
        5. Floral buds open, not enclosed by calyx buds; calyx with 6 lobes at anthesis; style < 1 cm long; fruits with seeds released at maturity; seeds not angled, with basal funicle-aril . . . . *Lecythis pisonis* subsp. *usitata*

Barringtonia asiatica (L.) Kurz, Prelim. Rep. Forest Pegu, App. A. lxv. 1875. FIGURE 163.

Basionym: *Mammea asiatica* L., Sp. Pl. **1:** 512. 1753.

Type: Prinsen Island, off West Java, *Osbeck s.n.* (holotype, LINN 675.1 & 675.2; isotype, S).

Syn.: *Barringtonia speciosa* Forster & Forster f., Char. Gen. Pl. 38, *t. 38.* 1775. (Type: Society Islands, Tahiti, *Forster & Forster s.n.* (holotype, BM).)

Tree 10-20 m tall with large spreading branches and obovate leaves. Inflorescences terminal racemes. Flowers with 2 sepals, persistent in fruit; petals 4, white; androecium actinomorphic with stamens long-exserted, filaments white and red- or pink-tinged distally, anthers with longitudinal slits; style 10-13 cm long, distally red- or pink-tinged. Fruits large (> 8 cm long), ovate, tetragonous, with a single seed.

GENERAL DISTRIBUTION: Native from Madagascar and the Seychelle Islands to southern India, Sri Lanka, southeast Asia, Malaysia, northeastern Australia, Micronesia, and the Pacific islands.

DISTRIBUTION IN LESSER ANTILLES: Antigua, Montserrat!, Guadeloupe, Dominica, Martinique!, St. Vincent!.

COMMON NAMES: Pain tree, arbre à barrette, bonnet de prêtre, bonnet d'éveque, mitre's cap, bishop's cap.

NOTES: Occurs primarily in littoral habitats but can tolerate drier sites. The fruits and especially the seeds are used as a fish poison, and on Antigua as a remedy for headaches.

Bertholletia excelsa Humb. & Bonpl., Pl. Aequinoct. **I:** 122, *t. 36.* 1807.

Type: Brazil, Pará, *Humboldt & Bonpland s.n.* (holotype, P?).

This species, the Brazil nut of commerce, is reported by Fournet (1978) in cultivation on Guadeloupe; we have not seen any representative material. The plant is native to northern South America as far south as Bolivia and Amazonian Brazil. It is a large tree with oblong leaves, paniculate inflorescences, and cream-colored flowers. The flowers are unique in that the calyx completely encloses the bud, at anthesis becoming 2-lobed. There are 6 petals, the androecial hood curves under at the apex with the appendages all sterile, the ovary is 4-locular, each with many ovules, and the fruit is ± globose with many strongly 3-angled seeds (the 'Brazil nuts'). The fruit is technically dehiscent by a small operculum that falls into the capsule. However, the diameter of the operculum is smaller than that of the seeds, which therefore remain in the fruit until the pericarp disintegrates. Prance and Mori (1979) describe these fruits as functionally indehiscent and consider the fruits and seeds to be adapted for dispersal by ''scatter-hoarding rodents.'' Known in Guadeloupe as noix de Brésil.

Couroupita guianensis Aublet, Hist. Pl. Guiane **2:** 708, *t. 282.* 1775.

Type: No extant material known. Plate 282 should probably be designated as the lectotype.

Syn.: *Couroupita antillana* Miers, Trans. Linn. Soc. London **30**(2): 191. 1874, ex char. (Syntypes: St. Vincent, *Guilding s.n.* and Trinidad, *Lockhart s.n.* (both at K).)

This distinctive tree, native to northern South America, is known in cultivation from St. Martin!, Montserrat!, Guadeloupe, Dominica!, St. Lucia!, and St. Vincent!. The flowers are borne in racemes that emerge from pendant branches borne on the trunk of the tree. They usually have 6, small, reddish sepals, 6 large petals, reddish orange within, yellowish without, and the androecial hood (yellow in color except for the reddish orange apex) is covered with fertile appendages. The ovary is 6-locular, and the globose 'cannonball' fruits (12-15 cm in diameter) are indehiscent fibrous berries. As reported by Prance & Mori (1979) the seeds are apparently dispersed by wild pigs, which are undoubtedly attracted to the foul-smelling decaying pulp of the fruit.

NOTE: Miers described *C. antillana* as a nomen novum for *C. guianensis* Hook. (Bot. Mag. **59:** *t. 3158.* 1832). He distinguished it from *C. guianensis* Aublet primarily on the basis of size differences (taller tree, longer racemes, and larger flowers and fruits), all of which are within the natural variation of this species.

Gustavia augusta L., Pl. Surin. 12, 17, & 18, *t. 1.* 1775.

Lectotype: Surinam, in 1754-55, *Dahlberg s.n.* (LINN 863.2; iso-lectotypes, LINN 863.1 and 863.4); designated by Mori *in* Prance & Mori, loc. cit. p. 158.)
Syn.: *Gustavia antillana* Miers, Trans. Linn. Soc. London **30**(2): 179. 1874. (Type: St. Vincent, *Guilding s.n.* (holotype, K).)

Native to northern South America, this species is known from Dominica!, Martinique, and St. Vincent! where it is grown in the respective botanic gardens. The flowers, borne singly or in racemes, have a rimlike calyx (rarely 4-lobed), typically 8 petals, white tinged with pink, especially without, and an androecium connate at the base (8-20 mm high) to form a conspicuous, actinomorphic staminal ring, the anthers with apical pores. The fruit is berrylike, indehiscent, globose with truncate apex, < 8 cm long, and the seeds are ovoid, black, with a yellow, contorted funicle.

NOTE: Mori (*in* Prance & Mori, 1979) considers the type collection to have been made by Allamand and Solander, sometime between 1755 and 1770. However, Stafleu & Cowan (Tax. Lit. vol. 3, 1981) indicate that the collections upon which Linnaeus based his Plantae Surinamenses were made by C. G. Dahlberg in 1754-1755.

Lecythis pisonis Cambess. subsp. **usitata** (Miers) Mori & Prance, Brittonia **33:** 80. 1981.

Basionym: *Lecythis usitata* Miers, Trans. Linn. Soc. London **30**(2): 208, *t. 47.* 1874. Lectotype: Brazil, Pará, Caripé, in 1850, Spruce 23 (K); designated by Mori & Prance, loc. cit.

Large trees to 30 m or more tall. Leaves crenulate-serrulate, with caudate apex. Inflorescences racemose. Flowers with 6 sepals; petals 6, lavender but fading white with age; staminal ring prolonged into a ligule that overarches the ovary as a hood, the hood lavender but fading white, with the proximal appendages fertile, the remainder sterile; ovary 4-locular, style short with annular expansion near apex. Fruit a woody capsule dehiscent by apical operculum; seeds released at maturity, with basal funicle-aril.

NOTES: This taxon, native to Amazonian Brazil, is known in our area from two collections (*Howard 18280* and *Proctor 25950*), both made from a specimen growing in the Botanical Garden, St. Vincent. One of five taxa recognized by Mori & Prance (Brittonia **33:** 70-80. 1981) as forming the ''sapucaia'' group of the genus *Lecythis*, known primarily for their edible seeds (similar in quality to *Berthellotia excelsa*, the Brazil nut). The large fruits are known as ''monkey pots'' in reference to their use as traps to capture monkeys.

Fournet (1978) lists *Lecythis grandiflora* Aublet (common name: canari macaque) as occurring on Guadeloupe. According to Howard (1983), who cites personal communication with Mori, this is *Eschweilera grandiflora* (Aublet) Sandw.; we have not seen any material to substantiate that this species, native to the Guianas and Brazil, occurs in our area, even in cultivation.

Napoleonaea imperialis P. Beauv., Napoléone 1, *pl. 1.* 1804.

Type: Oware, in 1787, *P. Beauvois s.n.* (holotype, G; isotype, K).
Syn.: *Napoleonaea miersii* Hook. f., Bot. Mag. **117:** *t. 7199.* 1891. (Type: plant cultivated at Kew Gardens, (holotype, K).)

Native to tropical West Africa, this species is documented by a single collection (*Hodge 3906*) from the Roseau Botanic Gardens, Dominica, although Fournet (1978) reports that it is cultivated here and there on Guadeloupe and Martinique. It is distinguished by the oblong-obovate to oblong-elliptic leaves with caudate apex and marginal or submarginal glands on the lower surface. The elaborate flowers, somewhat reminiscent of passion flowers, are borne singly and consist of the following whorls: calyx of 5 lobes, each lobe with 2 subapical marginal glands; no petals, but a multiradiate, tricolored, rotate pseudocorolla of staminal origin; a whorl of ca. 60 free, linear staminodes; a staminal corona of ca. 40 segments, fused except for the free laminar apices, this entire whorl curved inward over the ovary; a staminal whorl of 20 segments, fused except for the free laminar apices, 10 of which possess fertile anthers, the other 10 sterile, these alternating in pairs; intrastaminal disk, 10-lobed; ovary 5-locular with short style and pentagonal, peltate stigma. The fruit is a drupe with several reniform seeds.

NOTE: This genus is often cited as *Napoleona*, an orthographic variant also attributable to Palisot de Beauvois (Fl. Oware **2:** 30. 1811). Until recently this variant was considered to be the correct spelling of the genus, and in fact is so listed in the ING. However, Heine (Adansonia, ser. 2, **7:** 118-128. 1967), explains in detail the overlooked publication of *Napoleonaea imperialis* in 1804, which sets the correct spelling. For additional information concerning this genus see L. Liben, Bull. Jard. Bot. Nat. Belg. **41:** 363-382. 1971.

RHIZOPHORACEAE

by Allan J. Bornstein

RHIZOPHORACEAE R. Br. *in* Flinders, Voy. Terra Austr. **2:** 549. 1814 ('Rhizophoreae').

Trees or shrubs, with or without aerial prop roots. Leaves opposite, simple, entire, penninerved; stipules interpetiolar, foliose, caducous. Inflorescences axillary few-flowered cymes or fascicles, or the flowers solitary. Flowers regular, perfect; calyx of (3 or)4 or 5 (to 16) sepals, valvate, persistent, often fleshy or leathery; petals as many as and alternate with sepals, distinct, often unguiculate and commonly laciniate, convolute or inflexed in bud; stamens 2 to 4 times the number of petals, or indefinite, inserted on or near base of a perigynous, lobate nectary disk, filaments distinct, sometimes wanting, anthers introrse, bithecate and dehiscent by longitudinal slits, or cross-partitioned, multilocular, and dehiscent by a longitudinal valve; ovary superior, semi-inferior, or inferior, 2- to 5-locular or unilocular by failure of the septae, each with 2 (rarely more) pendulous ovules borne on apical-axile placentae, style simple, stigma lobes as many as locules. Fruit an indehiscent, leathery or fleshy, 1-seeded berry or drupe, or a tardily dehiscent septicidal capsule, 2-to 5-celled, each cell 1-seeded; seeds sometimes germinating while fruit is still attached to parent plant (viviparous), with or without endosperm.

TYPE: *Rhizophora* L.

A pantropical family of 14 to 16 genera and 100 to 120 species.

KEY TO THE GENERA

Inflorescences axillary cymes with conspicuous peduncle; ovary semi-inferior, bilocular; stamens 8, the anthers sessile or subsessile, multilocular, dehiscent by a valve; petals lanceolate (not unguiculate), entire; fruit an indehiscent berry, viviparous, usually 1-seeded; leaves coriaceous, apex obtuse; plants of mangrove swamps with prop roots . . . . *Rhizophora*

Inflorescences axillary fascicles, peduncle lacking, or the flowers solitary; ovary superior, 3- or 4-locular; stamens 15 to 30, anthers borne on elongate, filiform filaments, bithecate, dehiscent by longitudinal slits; petals unguiculate, laciniate; fruit a tardily dehiscent capsule, not viviparous, 3-seeded; leaves chartaceous, apex acuminate to caudate; plants of upland sites lacking prop roots. . . *Cassipourea*

CASSIPOUREA Aublet

Cassipourea Aublet, Hist. Pl. Guiane **1:** 528. 1775.

Shrubs or small trees lacking prop roots, glabrous or nearly so. Leaves opposite, petiolate or sessile; blades simple, entire or obscurely and remotely serrulate, chartaceous; stipules short, caducous, pubescent. Inflorescences axillary fascicles or the flowers solitary. Flowers with articulate pedicels; calyx free from ovary, campanulate, of 4 or 5 lobes, erect or reflexed, glabrous or pilose; petals inflexed in bud, unguiculate, the limb laciniate, glabrous or pubescent; stamens 15 to 30, filaments filiform, ± equal in length to calyx, anthers oblong-elliptic, bithecate, dorsifixed, dehiscent by longitudinal slits; ovary superior, 3- or 4-locular, each locule with 2 pendulous ovules, style filiform to stout, stigma obscurely 3- or 4-lobed. Fruit a tardily dehiscent septicidal capsule, typically 3-celled and 3-seeded; seeds with endosperm, basally arillate.

TYPE: *Cassipourea guianensis* Aublet.

A genus of approximately 70 species in tropical America, the West Indies, Africa (where it is best developed), India, and Sri Lanka.

Cassipourea guianensis Aublet, Hist. Pl. Guiane **1:** 529, *t. 211* ('guyannensis'). 1775. FIGURE 164.

Type: French Guiana, *Aublet s.n.* (holotype, BM; photo, GH!).
Syn.: *Legnotis elliptica* Sw., Prodr. 84. 1788; Fl. Ind. Occid. **2:** 969, *t. 17.* 1800. (Type: Jamaica, *Swartz s.n.* (location unknown).)

Legnotis cassipourea Sw., Prodr. 84. 1788, nom. illegit. for *Cassipourea guianensis* Aublet.

Cassipourea elliptica (Sw.) Poiret *in* Lam., Encycl. Suppl. **2:** 131. 1811.

Cassipourea alba Griseb., Abh. Königl. Ges. Wiss. Göttingen **7:** 223. 1857; Syst. Veg. Karaiben 75. 1857. (Type: Guadeloupe, Morne à l'eau, *Duchassaing s.n.* (holotype, GOET).)

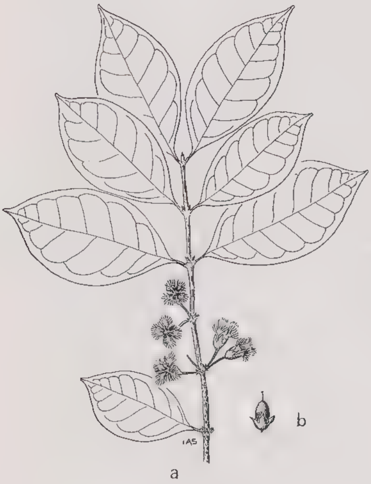
Cassipourea elliptica (Sw.) Poiret var. *alba* (Griseb.) Griseb., Fl. Brit. W. Indian Is. 274. 1860.

Cassipourea elliptica (Sw.) Poiret var. *pauciserrata* Griseb., Fl. Brit. W. Indian Is. 274. 1860. (Type: Dominica, *Imray s.n.* (holotype, K?; isotype, GH!, as *Imray 149*).)

Cassipourea latifolia Alston, Kew Bull. **1925:** 266. 1925. (Type: Trinidad, *Hart 6743* (holotype, TRIN).)

Cassipourea broadwayi Briquet, Candollea **4:** 342. 1931. (Syntypes: Tobago, The Widow near Easterfield, *Broadway 3841 & 4631* (GH!).)

Cassipourea guildingii Briquet, Candollea **4:** 343. 1931. (Syntypes: Cuba, near Havana, *de la Ossa s.n.* (G-DC!); and St. Vincent, *Guilding s.n.* (G-DC!, K!).)



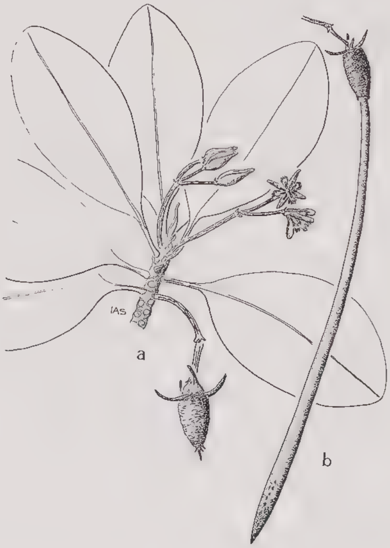


FIGURE 164 (left). *Cassipourea guianensis*: a, flowering branch, × 0.3; b, fruit, × 0.3. FIGURE 165 (right). *Rhizophora mangle*: a, flowering branch, × 0.3; b, mature fruit, × 0.3.

Shrubs or more commonly small trees 3-15 m tall, glabrous or sparsely pubescent and glabrate on youngest twigs. Leaves with petioles 2-10 mm long, glabrous or sparsely strigillose; blades ovate-elliptic to oblong-elliptic or oblong-obovate, 3.4-16.4 × 1.8-6.5(-8) cm, base cuneate to rounded, apex acute to more often acuminate or caudate, margin entire or obscurely sinuate-serrulate, especially on juvenile foliage, brochidodromous venation conspicuous on lower surface, strigillose, especially along midrib beneath, but soon glabrescent; stipules triangular to ovate-lanceolate, 2-6 mm long, strigillose. Flowers solitary or few and fasciculate; pedicels 2-10 mm long, articulate just beneath flower, glabrous or strigillose; calyx to 7 mm long, lobes triangular, 2-4 mm long, acute, green, densely sericeous within, glabrous or sparsely sericeous without; petals with claw 1.5-3 mm long, limb spatulate, 3-5 mm long, laciniate segments 3-4 mm long, white, pilose; stamens 15 to 25, inserted at base of cupular nectary disk (ca. 1 mm high), filaments 4-5 mm long, anthers 1.25-1.5 mm long; ovary globose, sericeous toward apex or glabrate, style exserted beyond calyx, 4-6 mm long, sericeous-villous, stigma capitate, obscurely lobed. Fruits oblong-ovoid to obovoid, 7-12 mm long, sericeous at apex or glabrate.

GENERAL DISTRIBUTION: Mexico, Central America, the West Indies, and South America to Peru and Brazil.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Mountain coffee, bois de l'ail, bois l'ail, bois agouti, pois die, goyavier, ti café.

NOTES: Until recently, *C. guianensis* and *C. elliptica* were considered distinct species on the basis of the length of the pedicel (subsessile vs. pedicellate) and geographic distribution (South America vs. Central America and the West Indies). Upon examination of material throughout the neotropics, it appears as though the pedicel length character is continuously variable, although the South American material does tend to have shorter pedicels. *Cassipourea alba* is supposedly exclusively 4-merous, but this feature varies among flowers on a single specimen. *Cassipourea elliptica* var. *pauciserrata* is theoretically distinguished by having leaves with few and distant serrations, but this is likewise an inconstant feature not worthy of recognition.

Cassipourea latifolia was recognized by Alston as distinct from *C. guianensis* on the basis of its larger and broader leaves, a totally unreliable and highly variable character. To complicate matters further, Briquet, with some hesitation, distinguished *C. broadwayi* from *C. latifolia* on the basis of its smaller leaves and more numerous flowers, while mentioning that it is pubescent on the young parts, a feature that Alston did not note. None of these supposed differences warrants the recognition of *C. broadwayi* as a distinct species, which examination of the type material confirms.

Finally, *C. guildingii* was distinguished by Briquet as the smallest leaved species of *Cassipourea* in the Americas, with petioles 2-3 mm long, blades 3-5 cm long, and pedicels 2-3 mm long. These values simply represent the small end of the range of variation for what appears to be a single, albeit variable, species. The *de la Ossa* specimen cited by Briquet as from the vicinity of Havana, is more likely a specimen that was cultivated in the botanic garden at Havana, having originated in St. Vincent and having been sent by Alexander Anderson to de la Ossa.

RHIZOPHORA L.

Rhizophora L., Sp. Pl. **1:** 443. 1753.

Shrubs or small trees of coastal tidal areas and other brackish waterways; stems and branches supported by aerial prop roots. Leaves opposite, petiolate; blades simple, entire, coriaceous, glabrous; stipules large and leaflike, caducous, glabrous. Inflorescences axillary cymes, few-flowered, pedunculate. Flowers with inarticulate pedicels; calyx immediately subtended by 2 connate, cupular bracteoles, sepals 4, leathery, each with prominent, central, longitudinal keel within; petals convolute in bud, entire, shorter than or equal to calyx lobes, margin densely villous; stamens 8 (more or less elsewhere), inserted with petals on thick cupular nectary disk, filaments short or wanting, anthers narrowly lanceolate, multilocular, areolate, basifixed, dehiscent by a ventral valve; ovary semi-inferior, bilocular, each locule with 2 pendulous ovules, style filiform, stigma bilobed. Fruit an indehiscent leathery berry, typically 1-seeded, the other ovules abortive; seeds without endosperm or aril, germinating while fruit is still attached to tree (vivipary), with elongate, clavate, pendulous hypocotyl projecting from fruit apex, eventually disarticulating above cotyledonary tube (fused cotyledons).

LECTOTYPE: *Rhizophora mangle* L.; vide N. L. Britton & J. A. Shafer, N. Amer. Trees 716. 1908.

A pantropical genus of 7 to 9 species. For additional information see F. M. Salvoza, Nat. Appl. Sci. Bull. Univ. Philipp. **5:** 179-237. 1936; S. A. Graham, J. Arnold Arbor. **45:** 285-293. 1964; P. B. Tomlinson, J. Arnold Arbor. **59:** 156-169. 1978; and P. B. Tomlinson, R. B. Primack, and J. S. Bunt, Biotropica **11:** 256-277. 1979.

Rhizophora mangle L., Sp. Pl. **1:** 443. 1753. FIGURE 165.

Lectotype: Herb. Sloane **6:** 62 (BM); designated by Keay, Kew Bull. **1953:** 123-124. 1953.

Shrub or small tree, 1-8 m tall; branches with conspicuous leaf and stipular scars. Leaves with petioles 0.6-2 cm long, glabrous; blades elliptic to obovate, 3.7-10(-15) × 2.1-5(-6.5) cm, base cuneate-attenuate, apex obtuse, dark green and shiny above, punctate beneath, venation inconspicuous; stipules narrowly lanceolate, 2.5-4.3 cm long. Inflorescences with peduncles 2.5-5.3 cm long, usually 2-flowered, occasionally 3- or 5-flowered. Flowers with pedicels stout, 10-16 mm long; bracteolar cup scalelike; sepal lobes lanceolate, 10-15 mm long, thick and coriaceous, acute, reflexed at maturity; petals lanceolate, ca. 10 mm long, apex emarginate, coriaceous, involute beyond middle, pale yellow, villous within and along margins; stamens with sessile anthers ca. 5 mm long, acute and sterile at apex; ovary with style ca. 4 mm long, forked at apex. Fruits conical, 2-2.5 cm long; seeds upon germination with hypocotyl to 25 cm long.

GENERAL DISTRIBUTION: Southern California and Florida, Mexico, Central America, the West Indies, South America, and West Africa.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Barbuda!, Antigua!, St. Kitts, Montserrat!, Guadeloupe!, Martinique!, St. Lucia!, St. Vincent, Grenada!.

COMMON NAMES: Manglier, palétuvier rouge, mangle rouge, mangle-chandelle, mangle noir, mangrove, pallisados, black manque, mang wouj.

NOTES: A principal inhabitant of the ''mangrove swamps'' that occupy many of the tropical coastlines in the New World. Commonly found in association with *Avicennia* (Verbenaceae), and *Laguncularia* and *Conocarpus* (Combretaceae), this species is perhaps the most important since it generally occurs in the outermost zone of the mangrove where it helps, by virtue of its numerous prop roots, to accumulate debris and sediment leading to the formation of new land.

The prop roots, so characteristic of this species and supposedly developed to stabilize the plant in the muddy substrate, actually function to maintain a high oxygen level in the roots submerged in the relatively anaerobic soil.

COMBRETACEAE

by Allan J. Bornstein

COMBRETACEAE R. Br., Prodr. 351. 1810.

Trees or shrubs, sometimes scandent. Leaves alternate, opposite, or pseudowhorled at branch apices, petiolate or sessile; blades simple, entire, penninerved, base of blade, or petiole, often with 2 multicellular glands; exstipulate. Inflorescences axillary or terminal racemes, spikes, panicles, or heads. Flowers regular or slightly irregular, perfect or staminate (plants then polygamous), often protogynous; hypanthium prolonged beyond ovary, often conspicuously so; sepals 4 or 5, appearing as lobes on hypanthium, valvate or imbricate, persistent or deciduous, sometimes much reduced; petals as many as and alternate with sepals, or often wanting, valvate or imbricate, deciduous; stamens usually twice as many as sepals, in 2 whorls, filaments inflexed in bud, often long-exserted at anthesis, anthers versatile or rarely adnate to filaments and immobile, bithecate, longitudinally dehiscent; intrastaminal disk usually present, glabrous or pubescent; ovary inferior, unilocular with 2(to 6) ovules pendulous from elongate funiculi, style simple, filiform, exserted, free or adnate to upper portion of hypanthium, stigma usually punctate. Fruits indehiscent, fleshy or dry, commonly winged or ridged, often adapted for water dispersal via an aerenchymatous mesocarp; seed 1, without endosperm.

TYPE: *Combretum* Loefl., nom. cons.

A widespread tropical and subtropical family of 20 genera and probably 400 to 450 species; best developed in Africa. For additional information see A. W. Exell, J. Bot. **69:** 113-128. 1931; A. W. Exell *in* C. G. G. J. van Steenis, Fl. Malesiana I. **4:** 533-589. 1954; A. W. Exell *in* R. E. Woodson & R. W. Schery, Ann. Missouri Bot. Gard. **45:** 143-164. 1958; S. A. Graham, J. Arnold Arbor. **45:** 293-301. 1964; A. W. Exell & C. A. Stace, Bot. Soc. Brot., ser. 2, **40:** 5-25. 1966; and C. A. Stace, J. Linn. Soc., Bot. **81:** 327-339. 1981.

CULTIVATED TAXA

Several species of *Combretum* are reported in cultivation in the Lesser Antilles. These are listed below and the genus is included in the "Key to the Genera," although no formal descriptions are provided. For a general review of *Combretum* in America see A. W. Exell, J. Linn. Soc., Bot. **55:** 103-141. 1953, and for a worldwide sectional conspectus see C. A. Stace, loc. cit. (1981).

Combretum coccineum (Sonn.) Lam. (based on *Cristaria coccinea*), a native of Madascagar, is reportedly cultivated on Barbados (Gooding, et al., 1965). This has not been confirmed by actual specimens.

Combretum paniculatum Vent., a native of tropical Africa, is known from a single collection (*Proctor 19315*) from Nevis. It is easily recognized by the numerous red flowers arranged in multibranched panicles. The herbarium label data lead one to believe that it may have become naturalized on the island ("forming extensive thickets on open hillside").

Combretum rotundifolium Rich., native to northern South America, is known from three collections, *Hodge 3941* cultivated in the Roseau Botanic Garden, Dominica, under the synonymous name *C. laxum* Aublet, *Duss 1490* (NY, n.v.), cultivated in the St. Pierre Botanic Garden, Martinique [identified as *C. secundum* Vahl (?)], and *Howard 19097* from a specimen cultivated on Montserrat. This species is distinguished by its lianous habit, its opposite, ovate to elliptic leaves with conspicuous red scales, and its bottlebrush inflorescence (a raceme) with relatively large, reddish, tetramerous flowers also covered with the red scales.

Combretum spinosum Bonpl. is listed by Exell (loc. cit.) for St. Vincent on the basis of a Guilding specimen (K, n.v.). This species is supposedly native from Cuba to Trinidad, Venezuela, and Panama, but the collections from Cuba and the Dominican Republic are questionable. This species is very similar to *C. decandrum* Jacq., and the two may indeed prove to be conspecific upon closer scrutiny. It is a liana with alternate or subopposite leaves, and white pentamerous flowers arranged in a paniculate inflorescence.

KEY TO THE GENERA

1. Petals present.
   2. Lower hypanthium with 2 adnate bracteoles; plant an erect shrub or small tree; upper hypanthium scarcely prolonged beyond the ovary.... *Laguncularia*
   2. Lower hypanthium without adnate bracteoles; plant a woody climber; upper hypanthium conspicuously prolonged beyond the ovary.
      3. Style adnate to the tube of the upper hypanthium for 1/2 the length of the latter; stamens not exserted.......................... *Quisqualis*
      3. Style free from upper hypanthium or very shortly adnate to it at the base; stamens exserted.................................... *Combretum*
1. Petals absent.
   4. Inflorescence a globose head; fruits scalelike, laterally compressed with 2 wings; leaves alternate, well-spaced along the stem................ *Conocarpus*
   4. Inflorescence a spike; fruits terete, not flattened and scalelike; leaves alternate but appearing pseudowhorled at the branch apices on mature shoots.
      5. Upper hypanthium deciduous.
         6. Anthers versatile; calyx lobes well-developed, triangular; stamens long-exserted .... *Terminalia*
         6. Anthers adnate to filaments, immobile; calyx lobes scarcely developed; stamens shortly exserted.......................... *Buchenavia*
      5. Upper hypanthium persistent............................ *Bucida*

BUCHENAVIA Eichler

Buchenavia Eichler, Flora **49:** 164. 1866, nom. cons.

Syn.: *Pamea* Aublet, Hist. Pl. Guiane **2:** 946, *t. 359.* 1775, nom. rejic.; see Taxon **33:** 120. 1984 and Taxon **36:** 433. 1987. Type: *Pamea guianensis* Aublet.

Trees or shrubs. Leaves alternate but pseudowhorled at mature branch apices, petiolate; blades eglandular, deciduous. Inflorescences axillary subcapitate spikes. Flowers regular, perfect, or some staminate but borne in same inflorescence as perfect flowers; hypanthium prolonged beyond ovary with lower portion pseudopedicellate, upper portion cupuliform, broader than long, deciduous, with 5 obscure calyx lobes; petals absent; stamens 10, with anthers adnate to filaments, immobile; disk well-developed, pubescent; ovary with style free from hypanthium. Fruit a drupe, fleshy, terete to 5-ridged or -angled.

TYPE: *Buchenavia capitata* (M. Vahl) Eichler = *Buchenavia tetraphylla* (Aublet) R. Howard.

A neotropical genus of ca. 21 species, primarily of South America but extending northward through the West Indies and into Panama. For additional information see A. W. Exell and C. A. Stace, Bull. Brit. Mus. (Nat. Hist.), Bot. **3:** 3-46. 1963.

Buchenavia tetraphylla (Aublet) R. Howard, J. Arnold Arbor. **64:** 266. 1983. FIGURE 166.

Basionym: *Cordia tetraphylla* Aublet, Hist. Pl. Guiane **1:** 224, *t. 88.* 1775.

Lectotype: Loc. cit. *t. 88* (excl. figs. 1-3); designated by Howard (1983).

Syn.: *Bucida capitata* M. Vahl, Eclog. Amer. **1:** 50, *t. 8.* 1797. (Type: Montserrat, *Ryan s.n.* (holotype, BM, specimen with flowers and old fruits; isotypes, BM, C).)
Buchenavia capitata (M. Vahl) Eichler, Flora **49:** 165. 1866.
Pseudolmedia bucidaefolia Bello, Anal. Soc. Esp. Hist. Nat. **12:** 109. 1883. (Type: Puerto Rico, not designated.)

Large tree with sympodial growth, to 30 m tall and 3 m in diameter; young twigs rufous-tomentose, soon glabrescent. Leaves with petioles to 10 mm long, rufous-pilose, ± glabrescent; blades obovate, 3-6.3(-9) × 1.7-3.5 cm, base cuneate, apex rounded or retuse, occasionally subacute, chartaceous becoming coriaceous, densely rufous-tomentose along midrib above, glabrescent, densely rufous-pilose to -tomentose beneath and ciliate when young, ± glabrescent. Inflorescences with peduncles 5-15 mm long, rufous-tomentose; spikes oblong to subcapitate, 7-18 mm long. Flowers with lower hypanthium 1.5-3 mm long, rufous-sericeous to -tomentose, upper hypanthium 1.5-2 mm long, glabrous or sparsely rufous-sericeous at base without and at apex within; calyx lobes obsolete; stamens shortly exserted, filaments ca. 2 mm long, anthers ca. 0.5 mm long; disk patelliform, margin very densely rufous-pilose; ovary with style subulate, 3.5-4 mm long. Fruits ellipsoid, subterete, 1.5-3 cm long, greenish, endocarp conspicuously ridged.

GENERAL DISTRIBUTION: Panama to Bolivia and the West Indies.

DISTRIBUTION IN LESSER ANTILLES: Antigua, Montserrat, Guadeloupe, Marie Galante, Dominica!, Martinique, St. Lucia, St. Vincent, the Grenadines, Grenada, Barbados.

COMMON NAMES: Bois-gli-gli, gri-gri, bois rada, bois arcoquois, z'olivier, olivier, arbre aux trésors.

NOTES: The description of the inflorescences and flowers is derived from West Indian material exclusive of the Lesser Antilles.

Until very recently this species had been known as *Buchenavia capitata* (M. Vahl) Eichler. However, Howard (1983), in the process of identifying the plates of Aublet's Histoire des Plantes de la Guiane Françoise, discovered that plate 88, identified as *Cordia tetraphylla*, largely corresponded to *Buchenavia capitata*. No specimens were found to represent a possible type, so Howard designated the plate (excluding the flowers, which belong to a species of *Cordia*) as the lectotype. Therefore, the epithet 'tetraphylla' becomes the earliest available name for the species in *Buchenavia*, regrettably superseding the well-established name *Buchenavia capitata*.

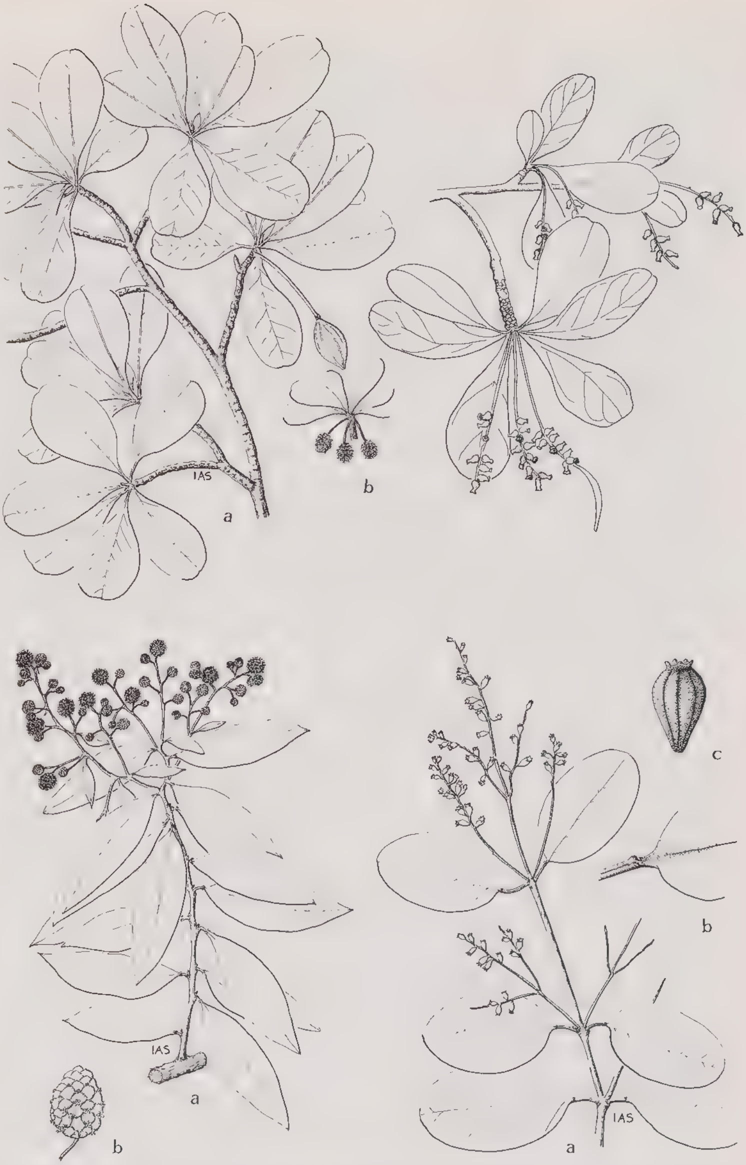


FIGURE 166 (upper left). *Buchenavia tetraphylla*: a, fruiting branch, × 0.3; b, flowering branch, × 0.3. FIGURE 167 (upper right). *Bucida buceras*, × 0.3. FIGURE 168 (lower left). *Conocarpus erectus*: a, flowering branch, × 0.3; b, fruit, × 0.6. FIGURE 169 (lower right). *Laguncularia racemosa*: a, flowering branch, × 0.3; b, glands at apex of petioles, × 0.5; c, fruit, × 0.6.

BUCIDA L.

Bucida L., Syst. Nat. ed. 10, **2:** 1025, 1368. 1759, nom. cons.

Syn.: *Buceras* P. Browne, Civ. Nat. Hist. Jamaica 221, *t. 23, fig. 1.* 1756, nom. rejic.

Trees or shrubs, occasionally spinescent. Leaves alternate but appearing pseudowhorled at mature branch apices, petiolate; blades ± eglandular, evergreen. Inflorescences axillary elongate spikes. Flowers regular, perfect or rarely some staminate; hypanthium prolonged beyond ovary, lower portion tubular, upper portion cupuliform, persistent, with 5 valvate calyx lobes; petals absent; stamens 10, anthers versatile; disk well-developed, surrounding base of style, pubescent; ovary with style free from hypanthium. Fruit a small drupe, ± fleshy, not winged or ridged, crowned by persistent upper hypanthium.

TYPE: *Bucida buceras* L.

A neotropical genus of 3 species ranging from southernmost Florida through the West Indies, and southern Mexico through Central America.

Bucida buceras L., Syst. Nat. ed. 10, **2:** 1025. 1759. FIGURE 167.

Holotype: LINN 556.1 (C. A. Stace, pers. comm.).
Syn.: *Buceras bucida* Crantz, Inst. Rei Herb. **1:** 133. 1766. (Type: P. Browne, Civ. Nat. Hist. Jamaica *t. 23, fig. 1.* 1756.)
Terminalia buceras (L.) C. Wright *in* Sauvalle, Fl. Cub. 38. 1869.
Myrobalanus buceras (L.) Kuntze, Revis. Gen. Pl. **1:** 237. 1891.

Tree with sympodial branching, the branches often spreading and drooping, sometimes with axillary buds modified into spines, 20-25 m tall and to 1.5 m in diameter; youngest twigs rufous-sericeous, soon glabrescent. Leaves with petioles 2-17 mm long, sericeous, glabrescent; blades elliptic to obovate, 3.5-9.5 × 1.1-4.6 cm, base cuneate to attenuate, sometimes with 2 obscure glands, apex obtuse to rounded or emarginate, coriaceous, sericeous but soon glabrescent. Inflorescences to 13 cm long, with peduncles 2-4.5 cm long, rachis rufous-pubescent. Flowers greenish to pale yellow, with lower hypanthium ca. 2 mm long, densely sericeous-tomentose, upper hypanthium 1.5-2 mm long, sericeous within and without; calyx lobes obscure, triangular, acute; stamens exserted, filaments 5-8 mm long, anthers cordiform, ca. 1 mm long with conspicuous apiculum; disk 5-lobed, crateriform, upper margin densely sericeous-pilose; ovary with style 4-5 mm long, sericeous-pilose at least half its length. Fruits obliquely ovoid, 5-8 mm long including persistent upper hypanthium (this eventually deciduous), densely sericeous-tomentose, occasionally forming elongate hornlike galls.

GENERAL DISTRIBUTION: As for the genus.

DISTRIBUTION IN LESSER ANTILLES: Barbuda!, Antigua!, Montserrat!, Guadeloupe, Dominica! (cultivation only), Martinique (?), St. Vincent, Barbados!.

COMMON NAMES: Whitewood tree, bois-gli-gli.

NOTES: The galls that form from some of the fruits are the result of a mite (*Eriophyes sp.*). They are quite elongate, as much as 16 cm long, and often curved or twisted.

The wood of this species is used throughout the West Indies for numerous construction purposes, being rather strong and durable.

CONOCARPUS L.

Conocarpus L., Sp. Pl. **1:** 176. 1753.

Shrubs or trees, erect or prostrate; stems glabrous or sericeous. Leaves alternate, short-petiolate, biglandular at or near the petiole-blade junction; blades evergreen, lower surface with pits (domatia) at midvein-secondary vein axils, occasionally elsewhere. Inflorescences short conelike heads arranged in terminal or axillary panicles. Flowers regular, perfect, or both perfect and staminate in the same inflorescence; hypanthium prolonged beyond ovary, lower portion flattened laterally, 2-winged, upper portion cupuliform with 5 valvate calyx lobes; petals absent; stamens 5 to 10, anthers versatile; disk well-developed, surrounding base of style, pubescent; ovary with style free from hypanthium, stigma punctiform. Fruits drupaceous, dry, leathery, laterally flattened, 2-winged, scalelike, imbricate in conelike head.

LECTOTYPE: *Conocarpus erectus* L.; vide E. G. Steudel, Nomencl. Bot. ed. 2, **1:** 404. 1840.

A genus of 2 species, one native to tropical America and West Africa, the other to Somalia (East Africa) and Arabia.

Conocarpus erectus L., Sp. Pl. **1:** 176. 1753 (as 'erecta'). FIGURE 168.

Lectotype: Sloane, Voy. Jamaica *t. 161, fig. 2.* 1703; designated by Wijnands (1983).
Syn.: *Conocarpus procumbens* L., Sp. Pl. **1:** 177. 1753. (Type: Cuba, Ammann Herb. 581 (LE).)
Conocarpus erectus L. var. *procumbens* (L.) DC., Prodr. **3:** 16. 1828.
Conocarpus erectus L. var. *sericeus* DC., Prodr. **3:** 16. 1828. (Type: Location and collector uncertain, possibly a Forsström collection from Guadeloupe or St. Barts, (G-DC; IDC 2562. 476: I. 7, photo!).)

Shrub or tree 1.5-10 m tall, prostrate in rocky habitats, erect elsewhere; trunk to ca. 1 m in diameter; young branchlets flattened, winged, glabrous or sericeous, glabrescent. Leaves with petioles to 5(-10) mm long, glabrous or sericeous; blades narrowly elliptic to lanceolate or slightly obovate, 2-9.7 × 0.9-3.8 cm, base cuneate to attenuate, apex rounded to more often acute, chartaceous to subcoriaceous, sericeous on both surfaces, especially along midrib, glabrescent or nearly so. Inflorescences ca. 5 mm in diameter, each borne on a densely sericeous peduncle 2-10 mm long, these arranged in panicles (occasionally simply racemes) < 9 cm long. Flowers greenish or greenish white; lower hypanthium 1 mm long, densely sericeous toward the apex, upper hypanthium 1.5 mm long, glabrous or slightly sericeous without, its lobes triangular, 0.5 mm long; stamens exserted, 10 or as few as 5 by abortion, filaments 2-3 mm long, anthers ca. 0.5 mm long with minute apiculum; disk densely sericeous-villous; ovary with style 2 mm long. Fruits squamiform, cone-scalelike, 3-4 × 3.5-4.5 mm, concave, the entire fruiting head to 17 mm long; seed narrowly ovoid, 2 mm long.

General distribution: Southern Florida through the Bahamas and West Indies to Brazil; Mexico through Central America to Ecuador and the Galapagos Islands; also found in West Africa.

Distribution in Lesser Antilles: Anguilla!, St. Martin!, St. Barts, Barbuda!, Antigua!, Saba (?), St. Eustatius, St. Kitts, Montserrat, Guadeloupe!, La Désirade, Marie Galante, Martinique!, St, Lucia!, St, Vincent!, the Grenadines, Grenada!.

Common names: Buttonwood, button bush, button mangrove, palétuvier, palétuvier rouge, palétuvier gris, paltivyé, mangue, mangle rouge, mangle gris, manglier gris, olivier bord de mer, West Indian alder, chêne Guadeloupe.

Notes: This species is a common associate with *Laguncularia*, *Avicennia*, and *Rhizophora* at the inner edge of the mangrove habitat, generally occurring above the level of tidal inundation. The fruit is well-adapted for distribution in this habitat as the bulk of the pericarp consists of aerenchymatous tissue, which allows it to float. The wood is very hard and slow burning, being used as a source of fuel throughout the West Indies.

There is some question as to the distinctness of var. *sericeus.* In our area virtually all of the plants have the young parts sericeous to densely sericeous, becoming glabrescent or nearly so with age. Some of the plants retain more of the pubescence than others, but this does not seem to correlate with geography or habitat in any way. Therefore, we feel that this variation does not warrant recognition at any taxonomic level.

The specific epithet is cited as either 'erecta', as originally proposed by Linnaeus, or 'erectus.' According to the ICBN (see articles 24.2 & 32.5), the epithet should agree in gender with the generic name. Therefore, as *Conocarpus* has a Greek masculine ending (see the ICBN, recommendation 75A.2, example 2), the correct epithet should be 'erectus.'

LAGUNCULARIA Gaertner f.

Laguncularia Gaertner f. *in* Gaertner, Fruct. Sem. Pl. **3:** 209, *t. 217.* 1807.

Shrubs or trees of mangrove habitats, with or without small pneumatophores. Leaves opposite with biglandular petioles; blades evergreen with numerous, submarginal, glandular pits beneath. Inflorescences axillary spikes, occasionally arranged in terminal paniculate clusters. Flowers regular, perfect or some staminate; hypanthium scarcely prolonged beyond ovary, lower portion funnelform or obconic, with 2 adnate bracteoles borne near apex, upper portion short-cupuliform, with 5 imbricate, persistent calyx lobes; petals 5, minute, caducous; stamens 10, anthers versatile; disk flattened, fleshy, radiate; ovary with style free from hypanthium, stigma capitate to slightly bilobed. Fruits drupaceous, laterally flattened, with 2 thickened wings, crowned by persistent calyx; seeds semiviviparous.

TYPE: *Laguncularia racemosa* (L.) Gaertner f. (*Conocarpus racemosus* L.).

A monotypic genus of tropical America and West Africa.

Laguncularia racemosa (L.) Gaertner f. *in* Gaertner, Fruct. Sem. Pl. **3:** 209, *t. 217, fig. 3.* 1807. FIGURE 169.

Basionym: *Conocarpus racemosus* L., Syst. Nat. ed. 10, **2:** 930. 1759.
Lectotype: LINN 237.2 (C. A. Stace, pers. comm., as yet ined.).

Shrub or tree 1.5-15 m tall; twigs reddish brown, glabrous or sparsely sericeous. Leaves with petioles 0.7-1.5 cm long, with 2 glands 2-3 mm below apex, glabrous; blades oblong or elliptic to ovate or obovate, 2.5-8.3(-9.9) × 1.4-4.7 cm, base rounded to subcordate, or occasionally cuneate, apex rounded or emarginate, glabrous. Inflorescences pedunculate, to 16.5 cm long, but usually < 10 cm, axes glabrous or densely sericeous-tomentulose; bracts ovate to suborbiculate, 1.5-2 mm long, glabrous or sericeous-ciliate, soon caducous. Flowers greenish white or white; lower hypanthium 2-4 mm long, glabrous or sericeous-tomentulose, with 2 shallowly dentate bracteoles ca. 1 mm long, upper hypanthium scarcely discernible, < 0.5 mm long; calyx lobes shallowly triangular, 0.5-1.5 mm long, glabrous or sericeous-tomentulose; petals suborbiculate, 1-1.5 mm long, glabrous or sericeous; stamens not exserted, filaments 1-1.5 mm long, anthers < 0.5 mm long; disk thick, 10-radiate, glabrous or puberulent; ovary with style to 1.5 mm long, glabrous. Fruits obovoid, compressed, 1-2 cm long, reddish, longitudinally striate, with 2 lateral ribs developed into narrow wings, sericeous or glabrous.

GENERAL DISTRIBUTION: As for the genus.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts, Barbuda!, Antigua!, St. Kitts, Montserrat!, Guadeloupe!, Marie Galante!, Les Saintes, Dominica!, Martinique!, St. Lucia!, St. Vincent, the Grenadines!, Grenada!, Barbados.

COMMON NAMES: White mangrove, Tom House mangrove, mangle blanc, mangle gris, manglier, manglier blanc, palétuvier, paltivyé.

NOTES: One of the common mangrove species along with *Rhizophora*, *Avicennia*, and *Conocarpus*.

The majority of the specimens that we have seen have pubescent inflorescences. However, a few specimens from Marie Galante and St. Lucia are completely glabrous. Given the sporadic occurrence of these forms, and the presence of pubescent plants on these same islands, it is doubtful that these glabrous specimens represent distinct taxonomic entities.

QUISQUALIS L.

Quisqualis L., Sp. Pl. ed. 2, **1:** 556. 1762.

Woody climbers. Leaves opposite or subopposite, deciduous, petioles partially persistent on old branches, their bases forming spines. Inflorescences axillary or terminal bracteate spikes. Flowers regular or slightly irregular, perfect; hypanthium greatly prolonged beyond ovary, lower portion tubular, upper portion elongate, narrowly tubular, ending in 5 valvate calyx lobes; petals 5, imbricate, inconspicuous or, as in our species, very conspicuous and much exceeding the calyx; stamens 10, inserted within upper hypanthium near its mouth, anthers versatile; disk narrowly tubular or absent; ovary with style adnate to inner surface of upper hypanthium for at least half the length of the latter. Fruits drupaceous, dry, narrowed at both ends, deeply 5-sulcate between wings; seed longitudinally sulcate.

TYPE: *Quisqualis indica* L.

A strictly Old World genus of ca. 17 species, of which one, *Quisqualis indica*, is cultivated throughout the tropics as an attractive ornamental.

Quisqualis indica L., Sp. Pl. ed. 2, **1:** 556. 1762. FIGURE 170.

Type: LINN 553.1; see G. E. Wickens, Fl. Trop. E. Africa, Combretaceae p. 67. 1973. For a different opinion concerning the holotype see A. C. Smith, Fl. Vitiensis Nova **3:** 416-417. 1985.

Climbing vine, twigs and branchlets tomentose to villose or pubescent. Leaves with petioles 5-13 mm long, tomentose to pubescent; blades elliptic to oblong-elliptic or ovate-elliptic, 5-15 × 2.2-6.5 cm, base rounded or subcordate, apex acuminate or subcaudate, chartaceous, minutely verruculose above, sparsely pubescent beneath, especially along veins. Inflorescences elongate, to 7.5 cm long; bracts lanceolate to ovate-lanceolate, 6-10 mm long, acuminate. Flowers fragrant; lower hypanthium 3-5 mm long, sericeous-tomentose, upper hypanthium 5-6.5(-8) cm long, expanded at apex, sericeous; calyx lobes triangular to deltate, 1-2 mm long, sericeous; petals oblong, 10-15(-20) mm long, white or pink, becoming red with age, sericeous without, glabrous within; stamens not exserted, filaments to 3 mm long, anthers ca. 1 mm long; ovary with style adnate to upper hypanthium except for distal 10-12 mm. Fruits ovate-elliptic, 2.5-4 cm long, with 5 stiff wings.

GENERAL DISTRIBUTION: Native to the paleotropics, but now pantropical through cultivation.

DISTRIBUTION IN LESSER ANTILLES: St. Barts, Antigua, Saba!, Guadeloupe!, Dominica!, Martinique, St. Lucia!, St. Vincent!, Grenada, Barbados.

COMMON NAMES: Rangoon creeper, caractère des hommes.

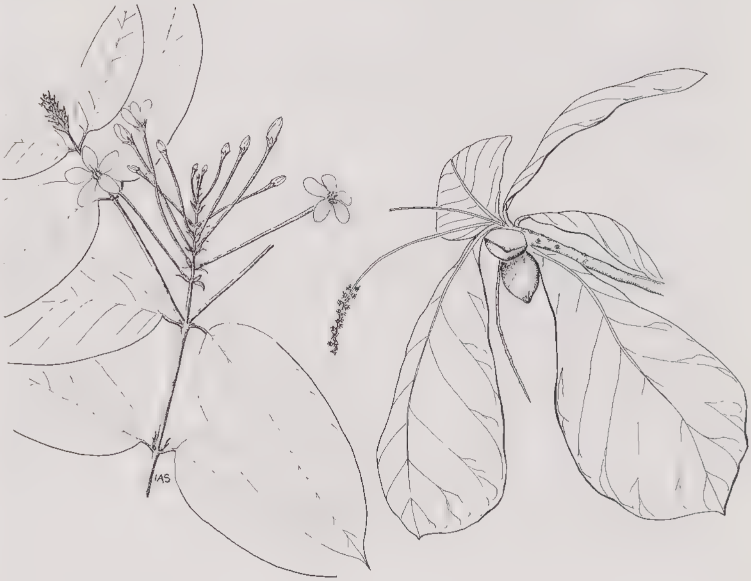


FIGURE 170 (left). *Quisqualis indica*, × 0.3. FIGURE 171 (right). *Terminalia catappa*, × 0.3.

TERMINALIA L.

Terminalia L., Syst. Nat. ed. 12, **2:** 674 ('638'). 1767; Mant. Pl. 21, 128. 1767, nom. cons.

Syn.: *Adamaram* Adans., Fam. Pl. **2:** 445, 513. 1763, nom. rejic. (Type: Not designated.)
Panel Adans., Fam. Pl. **2:** 447, 587. 1763, nom. rejic. (Type: Not designated.)

Trees or shrubs, often with tiered branching. Leaves alternate or subopposite, often appearing pseudowhorled at mature branch apices, petiolate; blades evergreen or, as in our species, deciduous, minutely verruculose, with 2 inconspicuous glands at base and often with domatia beneath. Inflorescences axillary spikes. Flowers regular, perfect or both perfect and staminate; hypanthium prolonged beyond ovary, lower portion narrowly tubular, pseudopedicellate, upper portion shallowly cupuliform, deciduous, ending in 5 valvate calyx lobes; petals absent; stamens 10, anthers versatile; disk 5-lobed, thickened, densely pubescent; ovary with style free from hypanthium. Fruits drupaceous, fleshy or dry and leathery, often with 2 to 5 wings.

TYPE: *Terminalia catappa* L.

A pantropical genus of 200 to 250 species, best developed in the Old World. Several introduced species are reported in the Lesser Antilles, only one of which has become naturalized.

INTRODUCED SPECIES

Terminalia arjuna (Roxb.) Wight & Arn., a species native to India and Ceylon, is known from specimens cultivated in the respective botanic gardens on Martinique (*Duss 1801*) and Dominica (*Hodge 943*!). It has oblong-elliptic leaves with conspicuous secondary veins and 5-winged fruits.

Terminalia bellirica (Gaertner) Roxb., native from India through southeast Asia into Malaysia, is reported by Fournet (1978), who cites Questel, as occurring here and there on Guadeloupe. This species is commonly cultivated outside its natural range, so the occurrence on Guadeloupe is not beyond reason. However, no recent collections are known. The fruits of this species are a source of myrobalans used in tanning leathers as well as making dyes and ink.

Terminalia latifolia Sw., supposedly endemic to Jamaica & Guatemala, was initially reported by Stehlé and Quentin (Fl. Guadeloupe, 1949) on the basis of a single collection (*Stehlé 140*, P, US). Fournet cites the same collection locality, presumably referring to the Stehlé specimen. This species has large leaves similar to *Terminalia catappa*, but is distinguished by the cuneate-attenuate leaf base (vs. cuneate-subcordate) and the fruits 3-4.5 × 1.5-2 cm (vs. 3-4.5 × (3.5-)4-7 cm). We have not seen the Stehle' collection nor any other specimens from our area referrable to this species.

Terminalia microcarpa Decne., a native of Malaysia, is known from three collections from Guadeloupe (*Stehlé 1554*, A!, P, US, photo at A!; *Stehlé 1952*, P, US, photo at A!, and *Stehlé & Stehlé 77/168*, A!). All of the collections were made from a specimen in the trial garden at Point à Pitre, and all were initially identified as *Licania columbarum* Stehlé & Quentin (Fl. Guadeloupe **2**(3): 50. 1949). In fact, *Stehlé 1554* is the type collection of *Licania columbarum* (syntypes, P, US, photo at A!; isosyntype, A!). For additional information see R. A. Howard, Fl. Lesser Antilles **4**: 330. 1988.

An additional collection from Guadeloupe, *Stehlé et al. 5282*, is questionably identified as a species of *Terminalia.* The collection is sterile and therefore not possible to identify accurately. In fact, it resembles *Buchenavia tetraphylla* as much as any species of *Terminalia.* Someone has tentatively identified the specimen at A as *Terminalia amazonia* (J. Gmelin) Exell, but the leaf shape (often used as a key character) is not at all compatible with this species.

Terminalia catappa L., Syst. Nat. ed. 12, **2:** 674 ('638'). 1767; Mant. Pl. 128. 1767. FIGURE 171.

Type: LINN 1222.1; see A. C. Smith, Brittonia **23:** 405. 1971.

Tree to 15 m tall (larger elsewhere), with spreading branches obviously tiered; youngest twigs densely rusty sericeous-tomentose, soon glabrescent. Leaves with petioles thick, 6-17 mm long, densely rusty sericeous-tomentose, glabrescent; blades obovate or occasionally obovate-elliptic or broadly oblanceolate, variable in size, 7.5-33 × 3.9-18.4 cm, base cuneate-subcordate or -subauriculate, with 2 glands, apex rounded or more commonly apiculate or cuspidate, chartaceous, lower surface with domatia in midvein-secondary vein axils, when young densely rusty sericeous-tomentose, with age increasingly glabrous, eventually glabrous above and sparsely sericeous-pubescent beneath, especially along major veins, turning red before falling. Inflorescences elongate, to 21(-25) cm long, rachis appressed-pubescent or less often glabrous. Flowers mostly staminate, white or greenish white, the perfect fruit-producing flowers located at proximal end of spike; lower hypanthium 3-7 mm long in pistillate flowers, 1-2 mm in staminate flowers, sparsely appressed-pubescent to densely sericeous-tomentose, upper hypanthium 1-2 mm long, sparsely appressed-pubescent or glabrous; calyx lobes triangular to deltate, 1-2 mm long, acute, glabrous; stamens long-exserted, filaments 3-4 mm long, anthers 0.5 mm long; disk 5-lobed, densely villous; ovary with style 2-4 mm long, glabrous. Fruits ovoid or ellipsoid, slightly compressed laterally, circumalate or the wing obscure, 5-6 × 2.5-3.5 cm, apex apiculate or cuspidate, glabrous, green becoming yellow to orange or red.

GENERAL DISTRIBUTION: Native to Malaysia, introduced and more or less naturalized in southern Florida, the West Indies, Mexico, Central America and northern South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla, St. Martin, St. Barts, Antigua, Saba, St. Eustatius, Montserrat!, Guadeloupe, Dominica!, Martinique, St. Lucia!, St. Vincent!, Grenada!, Barbados.

COMMON NAMES: Almond, Indian almond, Barbados almond, sea almond, wild almond, amandier, amandier-pays, z'amande, pied z'amande, zanmann.

NOTES: Commonly planted as a shade tree, but naturalized in its native habitat along the coast. The fruits are edible (the seed), and as indicated by the common names the taste is much like an almond.

MYRTACEAE

by Rogers McVaugh

MYRTACEAE A. L. Juss., Gen. Pl. 332. 1789.

Woody plants, the Antillean species with opposite branches; foliage, flowers, fruits, and often branchlets more or less densely beset with resinous glands. Leaves opposite, simple, entire, usually pinnately veined, midvein usually elevated and prominent on lower leaf surface, principal lateral veins usually united distally into a more or less defined ''marginal vein'' extending nearly the length of the blade, often aromatic and pellucid-dotted; exstipulate. Flowers borne on axillary (or, in some few introduced species, terminal) branches, solitary or in specialized bracteate inflorescences with opposite branching, these modified into ''racemes'' by elongation of axis and reduction of lateral axes to one flower each, into ''fascicles,'' ''glomerules,'' or ''umbelliform clusters'' by suppression of axis and reduction of lateral axes to one flower each, into dichasia by reduction of lateral axes to one pair, these arising just below flower terminating central axis, or into ''panicles'' by potentially indefinite elongation of both central and lateral axes, with proximal branches elongate and a transition from these to short simple branches and terminal triads of flowers. Flowers regular or essentially so, perfect or unisexual by abortion; hypanthium (''calyx tube'' of some authors) adnate to ovary its entire length, or prolonged beyond it so that stamens, petals, and calyx lobes appear to arise from distal margin of a short tube surrounding its summit; calyx lobes usually 4 or 5, distinct and imbricate, or calyx calyptrate and circumscissile, or rupturing irregularly at anthesis; petals usually 4 or 5, sometimes reduced in number or size, or wanting; stamens usually indefinitely many, in one or several series, arising from a usually thickened ring surrounding naked summit of ovary or at margin of elongate, tubular hypanthium (summit of ovary and surrounding staminal ring forming so-called floral disk), filaments filiform and distinct in Antillean species, anthers short, versatile or basifixed, bilocular, opening by longitudinal slits; ovary inferior, 2- to many-locular with placentae affixed to central dissepiment or central axis, ovules 2 or more in each locule, style simple, elongate, stigma small, capitate or peltate, simple and unbranched or otherwise reflecting the number of locules. Fruit in Antillean species a fleshy or juicy ''berry'' with one or many seeds embedded in pulp; embryo of four principal types: (1) of two large, separate, fleshy, plano-convex cotyledons and a short hypocotyl; (2) *myrcioid* with cotyledons foliaceous, crumpled and folded about elongate hypocotyl; (3) *eugenioid*, massive, undivided and apparently homogeneous, without evident division into cotyledons; and (4) *pimentoid* with cotyledons small and inconspicuous at apex of an elongate, coiled or curved hypocotyl. (In *Myrtus* the cotyledons about equal to hypocotyl in length.)

The American species of Myrtaceae (with one exception, the Chilean *Tepualia stipularis*), belong to the tribe Myrteae, to which the above description principally applies. The members of the other tribes, Leptospermeae (except for *Tepualia*) and Chamaelaucieae, are natives of the Australasian region, and are particularly well represented in Australia. The fruit in these is typically dry, nutlike, or capsular. A few genera, especially *Eucalyptus*, *Callistemon*, and *Melaleuca*, are represented in various parts of tropical and subtropical America by introduced species that show little tendency to become naturalized. The following taxa are represented by specimens or references as indicated: *Callistemon citrinus* (Curtis) Stapf (Montserrat); *Eucalyptus deglupta* Blume (St. Lucia); *E. globulus* Labill. (ex Fournet);

E. maculatus Hooker var. *citriodorus* (Hooker) Bailey (ex Gooding et al); *E. resinifera* Smith (ex Fournet); *E. torelliana* F. Muell. (Barbados); *Melaleuca linearifolia* Smith (Dominica, Guadeloupe); *M. quinquenervia* (Cav.) S. T. Blake (Dominica, Montserrat). Considering the size of the family (probably at least 1500 species in America), it includes relatively few species of great economic importance. A few species of *Eucalyptus* and a few of *Syzygium* are cultivated for their ornamental flowers or fruits. One of the best known tropical fruits is the guava from *Psidium guajava*, and almost equally widely dispersed but far less common is the Surinam cherry, the fruit of *Eugenia uniflora*. Bay rum and oil of bay are products of the distillation of the leaves and twigs of *Pimenta racemosa*, and allspice is made from the dried unripe fruit of *Pimenta dioica*. *Myrtus communis* is widely cultivated as a hedge plant in warm regions.

For additional information see O. Berg. Linnaea **27:** 1-472. 1855-1856; I. Urban, Bot. Jahrb. Syst. **19:** 562-680. 1895; and R. McVaugh, Taxon **17:** 354-418. 1968.

KEYS TO THE GENERA

In the Myrtaceae, distinctions between groups of genera have mostly been formed on the basis of characters of the fruits and mature seeds, whereas species, and some individual genera, have been distinguished mostly on characters of the flower. Because flowers and fruits are rarely found together on the same plant, this has made identification of single specimens difficult.

In both of the following keys, inflorescence morphology is used as a primary character as these features remain essentially constant from one stage to another. A few genera (e.g., *Gomidesia*) are not identifiable with certainty in the absence of anthers, and a few species (e.g., *Psidium longipes*) are not easily identified unless mature fruits and seeds are available, but for the most part either flowering or fruiting material can be named after a little practice.

KEY TO FLOWERING MATERIAL

1. Inflorescence a compound panicle, at least in part irregularly branched, or more than once branched, never a simple raceme with pairs of opposite flowers on a central axis, never a simple dichasium (i.e., determinate at lowest node, then regularly forking with sessile flowers in forks).
    2. Calyx completely closed in the bud, with no visible lobes.
        3. Calyx circumscissile, falling off as a cap when the flower opens, or remaining attached at one side; ovules 2 in each locule . . . . *Calyptranthes*
        3. Calyx opening irregularly into 4 thin lobes that become reflexed and then tend to fall away from the hypanthium; ovules 4 to 6 in each locule . . . . *Blepharocalyx*
    2. Calyx open in the bud, with 4 or 5 distinct lobes, or sinuate-margined (lobes barely recognizable as such).
        4. Calyx lobes 5.

5. Anthers with two pairs of pollen sacs at different levels, the upper seeming to open extrorsely and the lower introrsely; plants densely velvety-pilose with yellow-brown hairs; leaves strongly concavo-convex .... *Gomidesia*

5. Anthers with pollen sacs all at same level, opening laterally; plants not velvety-pilose, or if so, leaves flat.

6. Branchlets more or less strongly 4-angled; herbage very fragrant with odor of lemon, citronella, or bay rum; calyx lobes persistent, more or less rolled back with the hypanthium margin after flowering; ovules 4 to 7 in each of 2 locules .... *Pimenta*

6. Branchlets terete or compressed, not angled; herbage not especially fragrant; calyx lobes persistent or deciduous.

7. Calyx splitting irregularly between lobes at anthesis, the two inner lobes forming a calyptra that remains attached for a time at one side; petals 3, minute, adherent to the calyptra and falling with it; plants copiously brown or rufous-pubescent at least in the inflorescence .... *Marlierea ferruginea*

7. Calyx not splitting between lobes, regular, lobes persistent, or in some nearly glabrous species detaching from hypanthium in age; petals 5, conspicuous, falling individually .... *Myrcia*

4. Calyx lobes 4, sometimes very short and the calyx sinuate-margined.

8. Branchlets bicarinate, keels terminating at each node in midlines of petioles; buds with small, free calyx lobes at tips, splitting irregularly between lobes at anthesis; petals separate; ovules 2 in each locule .... *Marlierea guildingiana*

8. Branchlets terete or nearly so, or more or less 4-angled; calyx not splitting irregularly between the lobes at anthesis.

9. Calyx very short-sinuate-margined, indistinctly 4-lobed; petals coherent, falling in a flat orbicular calyptra about 2.5 mm in diameter; plants glabrous; ovules numerous in each locule ..... *Syzygium cumini*

9. Calyx with well-differentiated, distinct lobes from the first; petals distinct, falling separately.

10. Hypanthium canescent; buds 2.5-3.5 mm long; ovules 1 or 2 in each locule .... *Pimenta dioica*

10. Hypanthium glabrous; buds 1 cm long or more; ovules numerous in each locule .... *Syzygium*

1. Flowers solitary or inflorescences few-flowered; if compound, then racemose, or determinate at lowest node and regularly forked with sessile flowers in forks.

11. Inflorescence a dichasium (forked, with sessile flowers in forks).

12. Buds closed, calyx opening irregularly at anthesis; flowers mostly solitary, only exceptionally in a 3-flowered dichasium; ovary with 3 or more locules .... *Pimenta*

12. Calyx with 4 or 5 distinct lobes; flowers mostly 3 or more in a dichasium; ovary 2-locular.

13. Calyx lobes 5, deciduous from hypanthium about end of flowering period; flowers several or many, often irregularly disposed, seldom in a symmetrical dichasium; ovules 5 or 6 in each locule .... *Pseudanamomis*

13. Calyx lobes 4, persistent (an occasional flower with 5 lobes may be found in *Myrcianthes*); flowers usually 3 or 7, sometimes 4 to 6, in a symmetrically forked dichasium.

14. Calyx lobes appressed-pubescent within; hypanthium closely pale-pubescent or canescent; flowers all in dichasia; ovules 15 to 20 in each locule. . . . . *Myrcianthes*

14. Calyx lobes glabrous within; hypanthium glabrous or minutely hispidulous; flowers often solitary or in racemes.

15. Calyx lobes mostly broader than long; midvein narrowly impressed on upper leaf surface; leaves 4-9 cm long or more, apex acuminate. . . . . *Eugenia oerstedeana*

15. Calyx lobes mostly longer than broad; midvein flat or slightly convex on upper leaf surface; leaves mostly less than 5 cm long, apex rounded or obtuse. . . . . *Psidium longipes*

11. Flowers solitary and pedunculate, or all in racemes (axis of the raceme elongate and the pairs of flowers well-separated, or so short that the flowers appear to be fasciculate (i.e., arising in a group or cluster from the axil of a leaf)).

16. Hypanthium prolonged into a tube beyond the ovary, at anthesis circumscissile at base, cleanly deciduous, falling with attached stamens, calyx, and corolla, leaving a circular scar on ovary and fruit; ovules 2 to 4 in each locule.

17. Ovary below deciduous part of hypanthium prolonged, fusiform or campanulate, usually contracted into a neck in bud and in flower; bracteoles scarcely connate, much shorter than the ovary; ovules usually 4 (or 3) in each locule. . . . . *Siphoneugena*

17. Ovary not contracted into a neck, broad and flat after fall of the hypanthium, scarcely longer than the involucre formed by the broad connate bracteoles; ovules usually 2 in each locule. . . . . . *Myrciaria*

16. Hypanthium, if prolonged above ovary, not circumscissile at base, calyx persistent or sometimes splitting irregularly between lobes and resulting segments partly deciduous.

18. Hypanthium prolonged into a tube or cup beyond summit of ovary, stamens borne just within margin; flowers sessile in sessile axillary clusters subtended by sterile, imbricate bracts; free tips of calyx lobes very short, calyx and hypanthium tube splitting irregularly and longitudinally at anthesis into 4 unequal segments; ovules usually 2 in each locule. . . . . *Plinia*

18. Hypanthium hardly if at all prolonged (summit of ovary flat or nearly so), or if prolonged, flowers evidently pedicellate or in open inflorescences; calyx lobes well-formed and evident from the first, or calyx closed or partly so in bud.

19. Calyx closed or nearly so in bud, without definite lobes, splitting open irregularly. . . . . *Psidium*

19. Calyx open in bud, with an undulating margin exposing the corolla, or with well-formed calyx lobes evident from the first, lobes sometimes separated in age by splitting of hypanthium between them.

20. Calyx-lobes 5.

21. Leaves cuneate-obovate, apex mostly obtuse or rounded, 4-12 cm long; calyx with an undulating margin and low obscure lobes, splitting irregularly with the hypanthium tube into persistent, recurving segments (usually 4). . . . . *Psidium cattleianum*

21. Leaves elliptic-lanceolate or elliptic-ovate, tapering to a narrow acute apex, 1-4 cm long; hypanthium not prolonged beyond ovary, calyx not splitting between deltoid to short-ovate lobes. . . . . *Myrtus communis*

20. Calyx-lobes 4.

22. Flowers large, buds mostly 1.5 cm long or more, seldom as short as 1 cm; plants glabrous; flowers in lateral panicles or terminal racemes or panicles. . . . . *Syzygium*

22. Flowers smaller, buds rarely more than 8 mm long (to 10 mm in *Eugenia gryposperma* with sessile cordate leaves); plants rarely completely glabrous; flowers solitary and axillary or in axillary racemes.

23. Calyx with an undulating margin and low obscure lobes, splitting irregularly with hypanthium tube into persistent, recurving segments (usually 4 in number). . . . . *Psidium cattleianum*

23. Calyx with well-developed calyx lobes from the first, not undulate-margined, not at all or inconspicuously splitting between lobes.

24. Pedicels 1.5-2(-3.5) cm long; flowers mostly solitary from axils of small deciduous bracts at lower nodes of otherwise leafy branchlets; calyx lobes evidently longer than wide, reflexed soon after flowering; leaves commonly 5 cm long or less; plants nearly glabrous or somewhat hispidulous.

25. Midvein narrowly and conspicuously impressed on upper leaf surface; leaves mostly 2 to 2.5 (-3.5) times as long as wide, elliptic, base mostly acute. . . . . *Eugenia ligustrina*

25. Midvein flat or convex to shallowly sulcate on upper leaf surface; leaves mostly 1.5 to 2 times as long as wide, ovate to suborbiculate broadly elliptic, rounded to subcordate at base.

26. Stigma minute, 0.1-0.2 mm wide; ovary with strong longitudinal ridges; leaves mostly ovate, apex bluntly acuminate . . . . *Eugenia uniflora*

26. Stigma evidently peltate, 0.3-0.4 mm wide; ovary terete; leaves commonly broadly elliptic to suborbiculate, less often ovate, apex mostly rounded or obtusely pointed. . . . . *Psidium longipes*

24. Pedicels usually less than 1 cm long; flowers mostly in leafless racemes or fascicles in leaf axils; calyx lobes mostly about as wide as long, or wider, reflexed or commonly erect or spreading; leaves often more than 5 cm long; plants often often variously silky or densely pilose or pubescent. . . . . *Eugenia*

Key to Fruiting Material

1. Inflorescence a compound panicle, at least in part irregularly branched, or more than once branched, never a simple raceme with pairs of opposite flowers on a central axis, never a dichasium (i.e. determinate at lowest node then regularly forking with sessile flowers in the forks).

2. Seeds usually 1 or 2, the large cotyledons more or less filling the seed coat, either thin and crumpled or plano-convex, or united and the embryo apparently undivided; ovary bilocular except for 1 species of *Myrcia*.

3. Embryo myrcioid (cotyledons thin and flat, crumpled and folded into a bundle, the elongate hypocotyl encircling the bundle) filling the large seed; seed coat membranous or cartilaginous, fragile; calyx lobes in our species 5, or calyx closed in bud and opening irregularly, the rim of the hypanthium circular or irregularly split, remnants of it persistent in fruit.

4. Anthers with two pairs of pollen sacs at different levels, the upper seeming to open extrorsely and lower introrsely; calyx lobes 5, persistent in fruit; plants densely velvety-pilose with yellow-brown hairs; leaves strongly concavo-convex . . . . *Gomidesia*

4. Anthers with pollen sacs all at same level, opening laterally; calyx various; plants not velvety-pilose, or, if so, leaves flat.

5. Calyx lobes (5 in our species) normally developed and present in flower and usually in fruit; hypanthium, if produced longitudinally beyond summit of ovary, not splitting between lobes at anthesis (individual lobes sometimes finally deciduous); branchlets never wing-angled . . . . *Myrcia*

5. Calyx closed in bud, or lobes reduced in size or in number (usually to 4), or unequal in size; hypanthium noticeably prolonged longitudinally, its remnants persistent in fruit.

6. Calyx closed in bud, circumscissile, terminal part falling off as a calyptra when flower opens; persistent tube of hypanthium not splitting longitudinally; branchlets sometimes with angles or wings terminating distally at nodes between leaf bases . . . . *Calyptranthes*

6. Calyx closed in bud or (in our species) with small, free calyx lobes, opening irregularly by splitting of hypanthium beween lobes, fissures often extending nearly or quite to summit of ovary and irregular segments persistent; branchlets sometimes with angles or wings terminating distally at nodes in midlines of leaf bases . . . . *Marlierea*

3. Embryo massive, without evident division into cotyledons, or cotyledons fleshy, plano-convex, united at one end only; calyx lobes 4 (in one species very short and calyx margin merely undulate-lobulate), persistent; inflorescence few- or many-flowered; ovules numerous in each locule . . . . *Syzygium*

2. Seeds numerous (or in *Blepharocalyx* usually 1 or 2); embryo pimentoid (cotyledons small and inconspicuous at one end of an elongate coiled or curved embryo); ovary bilocular; calyx-lobes, if developed, 4 or 5, persistent; seed coat membranous or leathery.

7. Calyx lobes 4 or 5; inflorescence typically a myrcioid panicle, flowers solitary or irregularly arranged in 3's near tips of compound branches; branchlets more or less strongly 4-angled; herbage very fagrant with odor of lemon, citronella, or bay rum . . . . *Pimenta*

7. Calyx closed in bud, splitting irregularly at flowering time into 4 thin lobes that fall away from rim of hypanthium; inflorescence a panicle, but each branch a 3-flowered (rarely 7-flowered) dichasium; branchlets not 4-angled; herbage not especially odorous . . . . *Blepharocalyx*

1. Flowers solitary or inflorescences few-flowered, if compound then racemose, or determinate at lowest node and regularly forked with sessile flowers in the forks.

8. Inflorescence a dichasium (forking, with sessile flowers in the forks).

9. Calyx lobes 5, deciduous; inflorescence often irregularly forked or umbelliform; cotyledons fleshy, plano-convex, united about one-third their length; ovules 5 or 6 in each locule .... *Pseudanamomis*

9. Calyx lobes 4 (rarely 5) and persistent, or calyx opening irregularly and the resulting torn segments more or less persistent on the fruits; inflorescences regularly forking, usually 3- or 7-flowered, or 4- to 6-flowered by abortion; embryo various.

10. Seeds several or many in each fruit; testa bony; cotyledons small and inconspicuous at one end of an elongate, coiled or curved embryo .... *Psidium*

10. Seeds usually 1 or 2, more or less filling the fruit; testa thin, tough or brittle; embryo massive (without apparent division into cotyledons), or the cotyledons large, fleshy, plano-convex.

11. Calyx lobes glabrous; flowers bibracteolate at base, bracteoles broad, long-persistent; embryo massive, without evident cotyledons... .... *Eugenia oerstedeana*

11. Calyx lobes closely appressed-pubescent within; bracteoles narrow, soon deciduous; cotyledons united at base only... *Myrcianthes*

8. Flowers solitary and pedunculate, or all in racemes (the axis either elongate and the pairs of flowers well separated, or somewhat or greatly reduced in length and the pairs of flowers seeming to arise together in a group or cluster from the axil).

12. Embryo massive (''pseudomonocotyledonous,'' i.e., without any apparent division into cotyledons), or with two large, fleshy, plano-convex cotyledons; seeds usually 1 (or 2), large in proportion to the fruit, with thin seed coat; bracteoles beneath the flowers often long-persistent; flowers prevailingly with 4 calyx lobes and 4 petals; ovary 2-locular.

13. Hypanthium circumscissile at base, cleanly deciduous (with the perianth and stamens) at about anthesis, leaving a circular scar on the ovary and fruit; ovules 2 to 4 in each locule.

14. Ovary below deciduous part of hypanthium prolonged, fusiform or campanulate, usually contracted into a neck in bud and in flower; bracteoles scarcely connate, much shorter than ovary; ovules usually 4 (or 3); cotyledons 2, distinct.. *Siphoneugena*

14. Ovary not contracted into a neck, after fall of hypanthium broad and flat, scarcely longer than the involucre formed by the broad connate bracteoles; ovules usually 2 in each locule; embryo not divided into cotyledons...................... *Myrciaria*

13. Hypanthium not circumscissile; calyx with 4 conspicuous lobes, or partially or wholly closed and opening by irregular fissures; ovules several or many in each locule, or occasionally only 2 to 4.

15. Inflorescences terminal (i.e., terminating axis of the branchlet, not terminating a modified branchlet axillary to a leaf; falsely terminal inflorescences may arise from axils of uppermost pair of leaves) .... *Syzygium*

15. Inflorescences lateral (in axils of leaves, or at leafless nodes on old wood).

16. Larger calyx lobes 6-10 mm wide or more; plants glabrous; fruit fleshy, juicy, 2-6 cm dia., 4-7.5 cm long, or even larger in cultivation . . . . *Syzygium*

16. Larger calyx lobes to 5-6 mm wide, usually less; plants commonly pubescent at least on young growth (one species of *Eugenia* glabrous with calyx lobes to 6 mm wide, leaves sessile and cordate); fruit mostly 1-1.5 cm dia. or less, in a few species 2-3 cm but the plants then conspicuously pubescent or calyx lobes only 3-4 mm wide.

    17. Hypanthium not prolonged beyond the essentially flat summit of ovary; calyx lobes distinct and imbricate in bud and in flower (at most slightly connate near bases, but free parts of lobes then as long as rest of bud); embryo not divided into cotyledons; ovules usually several, sometimes as few as 2 in each locule; flowers mostly pedicellate . . . . *Eugenia*

    17. Hypanthium prolonged into a tube or cup beyond summit of ovary, stamens borne just within margin; free tips of calyx lobes very short, calyx and hypanthium splitting irregularly and longitudinally at anthesis into 4 unequal segments; embryo with distinct, fleshy, plano-convex cotyledons; ovules usually 2 in each locule; flowers sessile in sessile axillary clusters subtended by sterile, imbricate bracts . . . . *Plinia*

12. Embryo pimentoid (cotyledons small and inconspicuous at one end of an elongate coiled or curved embryo); seeds small, often several or many in each fruit, reniform or curved, with bony seed coat; bracteoles usually deciduous or at most subpersistent; flowers with 4 or 5 calyx lobes, or calyx opening irregularly and resulting segments more or less persistent on fruit; ovules several or many in each of 2 or 3 or more locules.

    18. Hypanthium prolonged beyond summit of ovary; calyx (whether open or closed in bud) splitting longitudinally at anthesis toward summit of ovary; peduncles sometimes 3-flowered; calyx often nearly or quite closed in bud, sometimes 4- (or 5-)lobed . . . . *Psidium*

    18. Hypanthium hardly if at all produced beyond summit of ovary; calyx (4- or)5-lobed, not splitting between lobes at anthesis, lobes persistent in fruit; peduncles normally 1-flowered; cultivated in America . . . . *Myrtus*

BLEPHAROCALYX O. Berg

Blepharocalyx O. Berg, Linnaea **27:** 348, 412. 1856.

Syn.: *Marlieriopsis* Kiaerskov, Bot. Tidsskr. **17:** 281. 1890. (Type: *Marlieriopsis eggersii* Kiaerskov.)

Shrubs or tall trees, hairs whitish or nearly glabrous. Inflorescences axillary myrcioid panicles, of which all or nearly all branches are determinate at first node (i.e., 1-flowered, or forming a 3-flowered or rarely 7-flowered dichasium). Flowers with buds entirely closed, obovoid, minutely apiculate, glabrous; hypanthium prolonged above ovary; calyx splitting irregularly at anthesis into 4 thin lobes that reflex and fall away from rim of hypanthium; petals 4, obovate, white, pilose; stamens numerous, free; ovary bilocular, ovules 4 to 6 in each locule, collateral. Fruits ellipsoid, 1-seeded, crowned by cuplike rim of hypanthium; seeds discoid-reniform, embryo pimentoid, strongly curved, almost annual, testa membranous.

TYPE: *Blepharocalyx acuminatissima* (Miq.) O. Berg (*Eugenia acuminitissima* Miq.) = *Blepharocalyx salicifolius* (Kunth) Berg; designated by R. McVaugh, Taxon **5:** 138. 1956.

A New World, tropical or warm-temperate genus of three species, primarily South American in distribution. For additional information see L. R. Landrum, Fl. Neotropica Monogr. **45:** 116-130. 1986.

Blepharocalyx eggersii (Kiaerskov) Landrum, Fl. Neotropica Monogr. **45:** 121. 1986. FIGURE 172.

Basionym: *Marlieriopsis eggersii* Kiaerskov, Bot. Tidsskr. **17:** 282. 1890.
Type: Dominica, *Eggers 723* (holotype, C, n.v.).
Syn.: *Mitranthes eggersii* (Kiaerskov) Niedenzu *in* Engl. & Prantl, Nat. Pflanzenfam. **3**(7): 72. 1893.

Shrub or tree to 15 m tall, essentially glabrous. Leaves with petioles 1-6 mm long; blades elliptic-ovate, 2.5-6 × 1-2.5 cm, base acuminate, cuneate, or rounded, apex bluntly acuminate, veins inconspicuous beneath, coriaceous, nearly smooth above. Panicles nearly sessile, 4-5 cm long. Flowers with buds 2-3 mm long; petals 3 mm long; stamens ca. 50 to 75; style 4-5 mm long, stigma punctiform. Fruits 1-1.5 cm long; seeds 7.5 mm long.

GENERAL DISTRIBUTION: Lesser Antilles, Margarita, Venezuela, northern Brazil.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, St. Vincent!.

COMMON NAMES: Caconier, cerisier-montagne petite-feuille.

CALYPTRANTHES Sw.

Calyptranthes Sw., Prodr. 5, 79. 1788, nom. cons.

Shrubs or trees, glabrous or pubescent, hairs sometimes dibrachiate; branchlets sometimes with 2 wings or angles terminating distally at nodes between opposing leaf bases. Inflorescence an axillary or terminal myrcioid panicle; main axis of axillary panicles usually aborting above lowest node; bracts deciduous. Flowers with bracteoles deciduous before anthesis; hypanthium prolonged above ovary, its tube not splitting longitudinally; calyx completely closed in bud, circumscissile with operculum usually attached at one side during anthesis, at length deciduous; petals none, or in a few species 2 or 3(or 5), inconspicuous; stamens numerous, filaments filiform, anthers longitudinally dehiscent; ovary bilocular, ovules 2 in each locule, style filiform, stigma minute. Fruits as in *Marlierea* but bearing a circular apical scar

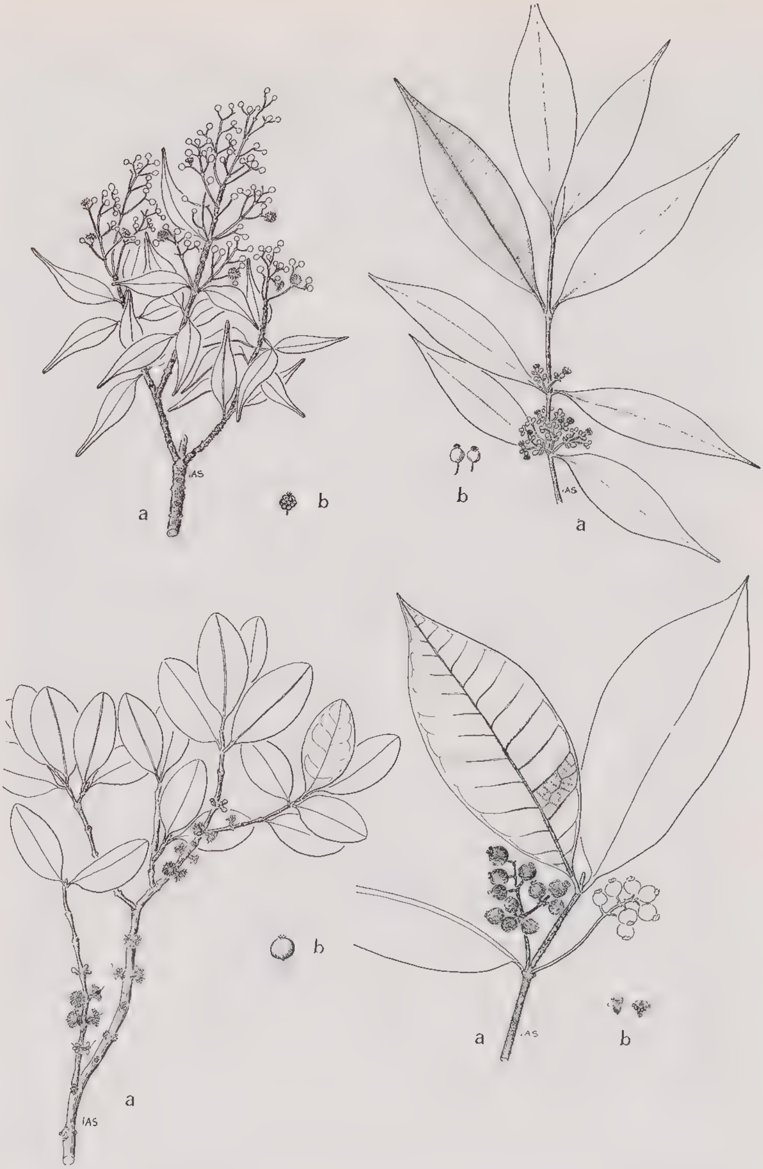


FIGURE 172 (upper left). *Blepharocalyx eggersii*: a, flowering branch, × 0.35; b, fruit, × 0.35. FIGURE 173 (upper right). *Calyptranthes fasciculata*: a, flowering branch, × 0.35; b, fruits, × 0.35. FIGURE 174 (lower left). *Eugenia cordata* var. *sintenisii*: a, flowering branch, × 0.35; b, fruit, × 0.35. FIGURE 175 (lower right). *Gomidesia lindeniana*: a, fruiting branch, × 0.35; b, flowers, × 0.35.

or rim marking line of dehiscence of hypanthium; seeds and embryo as in *Myrcia*.

TYPE: Calyptranthes chytraculia (L.) Sw. (*Myrtus chytraculia* L.), typ. cons.

A genus of about 100 species in tropical and subtropical America.

KEY TO THE SPECIES

1. Plants glabrous or essentially so.
    2. Branchlets bicarinate between leaf bases; leaves 1.5-4 cm long.
        3. Leaves ovate or subrhombic-ovate, obtusely acuminate; midvein narrowly sulcate-impressed its whole length on upper surface .... *C. elegans*
        3. Leaves obovate to orbiculate; midvein impressed only toward base, or not at all.
            4. Leaves orbiculate, about as long as wide, sessile ...... *C. boldinghii*
            4. Leaves obovate, 1.5 to 2 times as long as wide; petioles 1.5-2.5 mm long .... See *C. kiaerskovii* under *C. elegans*
    2. Branchlets terete or compressed, not bicarinate; leaves ovate, 8-15 cm long .... *C. forsteri*
1. Plants copiously pubescent at least on inflorescence and young growth.
    5. Branchlets terete; pubescence rusty brown to dark red; panicles mostly 1-4 cm long, few- to 10-flowered .... *C. fasciculata*
    5. Branchlets bicarinate; pubescence yellowish or nearly colorless to pale rusty brown; panicles commonly 10-12 cm long, with 50 to 60 or more flowers .... *C. pallens*

Calyptranthes boldinghii Urban, Symb. Antill. **6:** 22. 1909.

Type: St. Martin, *Boldingh 3270B* (lectotype, U!; isolectotypes, NY!, U!); see note below.

Shrub 2 m tall, glabrous except for stiff red hairs on vegetative buds; branchlets bicarinate. Leaves sessile, erect; blades orbiculate or obovate-orbiculate, 1.5-3 cm long, midvein a little or not at all impressed on upper surface near base, coriaceous. Inflorescences few-flowered in fruit; peduncles 0.8-2 cm long. Flowers on pedicels 1 mm long; buds obovoid, 3 mm long, tapering to narrow base; cupule of calyx 0.7-1 mm long. Fruits globose, 4-5 mm in diameter, impressed-punctate.

GENERAL DISTRIBUTION: St. Martin!.

NOTE: Known only from the type collection, which was incorrectly cited as "*Boldingh 2370B*."

Calyptranthes elegans Krug & Urban, Bot. Jahrb. Syst. **19:** 599. 1895.

Lectotype: Martinique, *Duss 205*, (isolectotype, NY!, photo at A!).

Erect shrub, glabrous; branchlets bicarinate. Leaves with petioles 1-2 mm long; blades elliptic, ovate, or subrhombic-ovate, 2.5-4 × 1.3-2 cm, 1.5 to 2 times as long as wide, base acute or cuneate, apex obtusely acuminate, midvein narrowly sulcate-impressed above for most of its length. Panicles 3 times compound, 5-8 cm long, much longer than leaves, many-flowered; peduncles 1.5-4 cm long; bracts and bracteoles caducous. Flowers mostly sessile; buds obovoid, 2-3 mm long, scarcely apiculate; cup of hypanthium 1.5-2 mm wide, its margin soon revolute; stamens 50 to 75; style 3-4 mm long. Berries subglobose, 5-6 mm in diameter.

GENERAL DISTRIBUTION: Known only from the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Bois baguette, bois petite feuille, bashy guava.

NOTES: *Calyptranthes kiaerskovii* Krug & Urban ex Urban (Symb. Antill. **1:** 42. 1898, nom. nov. for *Calyptranthes obovata* Krug & Urban, Bot. Jahrb. Syst. **19:** 600. 1895, not *C. obovata* Kiaerskou (1893)) is, according to Urban, perhaps only a variety of *C. elegans.* It is known only from the type (*Eggers 3217*, C!), a sterile specimen collected on the island of Tortola. In *C. kiaerskovii*, as noted by Urban, the petioles are 1.5-2.5 mm long, the blades are obovate and obtuse or usually rounded at apex, with a midvein channeled near base but not above middle of blade, and the lateral veins ascend at a steeper angle than in *C. elegans.* Flowers and fruits are unknown. Branchlets in *C. kiaerskovii* are almost all terete, only a few of the youngest ones weakly bicarinate.

Calyptranthes fasciculata O. Berg, Linnaea **27:** 31. 1855. FIGURE 173.

Lectotype: Surinam, *Schomburgk 979*!.

Syn.: *Calyptranthes sericea* Griseb., Fl. Brit. W. Indian Is. 233. 1860. (Isolectotype: Dominica, *Imray s.n.* (GH!).)
Calyptranthes sericea Griseb. var. *hahnii* Krug & Urban, Bot. Jahrb. Syst. **19:** 602. 1895. (Isosyntypes: Martinique, *Hahn 548!, 1181!, Duss 203!, 618!.*)
Calyptranthes fasciculata O. Berg var. *genuina* Stehlé & Quentin, Fl. Guadeloupe **2**(3): 62. 1949, nom. illegit. for the typical variety.
Calyptranthes fasciculata O. Berg var. *hahnii* (Krug & Urban) Stehlé *in* Stehlé & Quentin, Fl. Guadeloupe **2**(3): 62. 1949.

Small tree, to 12 m tall or more, rusty-pubescent with appressed, 2-branched hairs at least in inflorescence and on lower leaf surface; branchlets terete. Leaves with petioles 5-8 mm long; blades elliptic, elliptic-oblong, or lanceolate 5-10(-15) × 2-3(-4) cm, 2.5 to 4 times as long as wide, base acutely narrowed, apex acuminate or caudate-acuminate, midvein impressed on upper surface, upper surface minutely impressed-punctate. Panicles 1-1.5 cm long or less, often reduced to 1 to 3 or more branches that appear to be fascicled in the axils. Flowers mostly sessile in clusters of 3 to 5(to 10) at summits of short, pedunclelike branchlets; buds pyriform, 2-3 mm long, obtusely apiculate; petals 0; stamens ca. 30; style 3-4 mm. Fruits globose, 7-9 mm in diameter, with low apical collar, colored golden brown by dense covering of hair.

General distribution: Trinidad and Tobago, eastern Venezuela and the Guianas, to Pará, Brazil.

Distribution in Lesser Antilles: Dominica!, Martinique!.

Common names: Guépois, bois de basse rouge.

Note: The var. *hahnii* was said to differ from the typical variety in having the inflorescences very short and the fruit glomerate in the axils, the leaves shorter-petiolate with less prominently acuminate tips.

Calyptranthes forsteri O. Berg, Linnaea **27:** 23. 1855.

Type: St. Lucia, *Forster s.n.* in herb. Sonder (MEL).

Moderately large tree, sometimes to 20 m tall, 1 m dbh, glabrous or youngest herbage puberulent; branchlets terete or compressed. Leaves with stout petioles 3 mm long or less; blades elliptic-ovate, 8-15 cm long, about twice as long as wide, base rounded to subcordate or seldom merely obtuse, apex prominently triangular-acuminate, midvein flat or convex above, coriaceous. Panicles 5-12 cm long, consisting of 1 to 3 pairs of branches, each branch 15- to 20-flowered; peduncles 1-4(-6) cm long. Flowers solitary or in 3's, on pedicels 5-8 mm long or terminal ones sessile; buds pyriform to globose, 3-5 mm long including a short pseudostalk, apiculate, usually circumscissile but calyx sometimes splitting irregularly as in *Marlierea*, calyptra then smaller and open calyx apparently several-lobed; petals often irregularly shaped, 3-4 mm long, white; stamens 75 to 100; disk 4-4.5 mm wide; style 6-6.5 mm long. Fruits globose or turbinate, 1-2 cm in diameter.

General distribution: Venezuela and eastern Colombia.

Distribution in Lesser Antilles: Guadeloupe, St. Lucia!.

Common names: Debasse blanc, debasse rouge.

Note: A modern specimen, *Fournet 2022* (P), has open mature flowers with petals (as in many species of *Marlierea*), and in which the calyx opens irregularly as in *Marlierea*. Probably this species should be treated as a member of the latter genus.

Calyptranthes pallens Griseb., Abh. Königl. Ges. Wiss. Göttingen **7:** 215. 1857; Syst. Veg. Karaiben 67. 1857, based on *Calyptranthes chytraculia* (L.) Sw. δ *pauciflora* O. Berg.

Type: Guadeloupe, *Bertero s.n.*, in herb. Sonder (?MEL); see McVaugh, Fieldiana, Bot. **29:** 408. 1963.

Syn.: *Calyptranthes chytraculia* (L.) Sw. δ *pauciflora* O. Berg, Linnaea **27:** 27. 1855.
Eugenia pallens Poiret *in* Lam., Encycl. Suppl. **3:** 122. 1813. (Type: St. Thomas, *Ledru s.n.* (holotype, P-LA!; IDC 6207. 235: III. 6, photo!).)

Tree or large shrub 5-8 m tall; leafy branchlets bicarinate, wings terminating distally between leaf bases; inflorescences, branchlets, and to some extent leaves appressed-pubescent with pale rusty-brown, yellowish, or nearly colorless dibrachiate hairs 0.1-0.3 mm long. Leaves with petioles 6-8 mm long; blades rather broadly elliptic, 3-7(-10) × 2-4(-6) cm, 2 to 3(to 3.5) times as long as wide, about equally narrowed to broadly cuneate base and prominently acuminate apex, midvein impressed above at least near base. Panicles 10-12 cm long or less, usually with 50 to 60 or more flowers, lowest branches often as long as peduncles, these 2-4 cm long. Flowers with buds obovoid, 2.5-3 mm long including narrow base, often slightly apiculate; calyptra domelike, 1.3-1.7(-2) mm across; petals minute, adhering to calyptra and falling with it; stamens 50 to 60; style 4-5 mm long. Fruits globose or oblate, 5-8 mm in diameter, dark red.

General distribution: The West Indian plant is var. *pallens*, in southern Florida, Cuba, the Bahamas, Hispaniola, Jamaica, Puerto Rico, Lesser Antilles as far south as Guadeloupe, Yucatán peninsula and the Isthmus of Tehuantepec. The var. *mexicana* (Lundell) McVaugh, with branchlets inconspicuously or not at all angled, and the inflorescences rather sparingly pubescent, occurs in Mexico from Chiapas to Sinaloa.

Distribution in Lesser Antilles: Guadeloupe!, Marie Galante!.

Common name: Bois de basse.

EUGENIA L.

Eugenia L., Sp. Pl. **1:** 470. 1753.

Trees or shrubs, mostly pubescent with hairs in some species dibrachiate. Leaves penninerved with strong or weak intramarginal vein. Inflorescences predominantly axillary, bracteate racemes (rarely panicles) or flowers partly or wholly in opposite, bracteate pairs at lower nodes of otherwise leafy branchlets; bracteoles mostly conspicuous and persistent. Flowers 4-merous; hypanthium not prolonged above ovary, its base very rarely prolonged into a pseudostalk; calyx lobes conspicuous, usually persistent; petals free; stamens usually numerous in several series, free, filaments filiform, anthers dehiscent by longitudinal slits; ovary bilocular (very rarely 1-, 3-, or 4-locular), locules usually near middle of ovary, ovules as few as 2, or usually numerous in each locule, in crowded subcapitate clusters attached to central dissepiment, style filiform, stigma minute or very rarely peltate. Fruit a fleshy or woody berry with 1 or 2, rarely more, seeds; seeds usually large, testa membranous to crustaceous, embryo massive, cotyledons not discernible as such.

Lectotype: *E. uniflora* L.

A group that includes perhaps 500 species in tropical and subtropical America, and 50 to 60 species in the warmer parts of the Old World.

KEY TO THE SPECIES

1. Flowers sessile in clusters in leafy axils, or at leafless nodes on older wood.

2. Leaves mostly 2 to 3 times as long as wide, narrowed and acuminate at apex.

3. Leaves 8-18 cm long; midvein impressed; hypanthium pale-pubescent, mostly concealed by bracteoles, not prolonged beyond ovary; calyx persistent . . . . *E. coffeifolia*

3. Leaves mostly 6 cm long or less; midvein flat or slightly concave above; hypanthium glabrous, lustrous, wrinkled in drying, prolonged beyond ovary; calyx falling with hypanthium and stamens after flowering . . . . See *Myrciaria floribunda*

2. Leaves about 1.5(to 2) times as long as wide, broadly rounded to merely obtuse, or retuse, at apex.

4. Leaves cordate, 1-4 cm long; Puerto Rico to northern Lesser Antilles . . . . *E. cordata* var. *cordata*

4. Leaves broadly rounded to acute or cuneate at base, 2-5(-8) cm long.

5. Leaves commonly triplinerved; larger calyx lobes less than 1 mm long; style 3.5 mm long; disk 1-1.5 mm wide; Caribbean basin and northern Lesser Antilles . . . . *E. foetida*

5. Leaves pinnately nerved; larger calyx lobes 1.5-2 mm long; style 5-7 mm long; disk (1.5-)2-2.2 mm wide; Puerto Rico, Virgin Islands, more or less throughout Lesser Antilles . . . . *E. cordata* var. *sintenisii*

1. Flowers evidently pedicellate, the pedicels in some small-flowered species only 1-2 mm long but slender and readily identifiable.

6. Inflorescences evidently racemose with axis mostly 1-3 cm long; pairs of flowers well-separated on axis, internodes much longer than diameter of axis and at least some of them 3-5 mm long or more.

7. Plants essentially glabrous almost from the first; leaves glossy, finely wrinkled (reticulate-veined) above after drying, 3-8 cm long including narrow prolonged apices, 1-2 cm long . . . . rare forms of *E. confusa*

7. Plants copiously pubescent at least when in flower and on young growth; leaves inconspicuously if at all reticulate-veined above.

8. Leaves 10-20 × 5.5-12 cm, with a pair of strong veins paralleling the margins and 5-15 mm within them . . . . *E. trinervia*

8. Leaves smaller, seldom as much as 6 cm wide without well-developed marginal veins.

9. Racemes mostly 2 or 3 in each axil, 1-2 cm long, pedicels often longer than internodes of rachis; hairs of racemes reddish, mostly 2-branched, attached in middle; fruits elongate, 1.2-2.5 cm long, often 8-ridged . . . . *E. octopleura*

9. Racemes solitary in each axil, or if 2 or 3 together, hairs of racemes simple, ascending, yellowish or colorless; fruits globose or ovoid, not ridged.

10. Hairs of branchlets and racemes reddish; flowers larger, floral disk 3-4 mm wide.

11. Hairs of racemes prevailingly 2-branched, appressed, longitudinally oriented on branchlets; bracteoles broadly rounded; leaves of an elliptic type, commonly broadest at or near middle . . . . *E. domingensis*

11. Hairs of racemes simple, ascending; bracteoles acute or angled at apex; leaves of an ovate type, commonly broadest at or below middle . . . . *E. chrysobalanoides*

10. Hairs of branchlets and racemes yellowish or pale; flowers smaller, floral disk 1.5-2.5 mm wide.

12. Leaves thin, dull, not impressed-punctate, usually bearing a few, flat, reddish, 2-branched hairs near base on lower surface; bracteoles rounded, broadly ovate-cordate, membranous, not connected or united at base; inflorescences (in West Indian plants) often 1-flowered or 3-flowered. . . . . *E. oerstedeana*

12. Leaves coriaceous, lustrous above, often impressed-punctate, glabrous or with simple hairs; bracteoles acute, or ovate and obtuse, contiguous and often united into a cupule beneath flower; inflorescence usually a raceme, or 2 racemes superposed.

13. Bracteoles acute, usually somewhat united into a cupule; plants usually copiously pubescent; racemes often 2 per axil; flowers often 8 or fewer pedicels (3-8(-12)) mm long, often longer than internodes of rachis. . . . . *E. biflora*

13. Bracteoles obtuse or rounded, contiguous but scarcely united; plants very sparingly pubescent (at least in fruit); racemes solitary; flowers 6 to 12(to 40); pedicels 2-4 mm long, about equaling the internodes. . . . . *E. trinitatis*

6. Racemes short (usually much less than 1 cm long) and the pairs of flowers crowded together or appearing to arise in a fascicle from the axil.

14. Leaves cordate, sessile, 5-9 cm long; flowers large (calyx lobes to 5 mm long; disk 4.5 mm wide); Martinique. . . . . *E. gryposperma*

14. Leaves various, neither sessile nor cordate; flowers various, mostly much smaller.

15. Flowers solitary in axils of thin narrow scarious deciduous bracts, at lowest nodes of branches that are normally leafy but sterile at tips; plants glabrous or nearly so at maturity; pedicels very slender, (5-)10-35 mm long; calyx-lobes 2.5-5 mm long, much longer than wide; bracteoles membranous, narrow, 1-5 mm long, deciduous as flowers open or before.

16. Leaves ovate, 1.5-4.5 cm wide, rounded at base; hypanthium (even in flower) longitudinally ridged; fruits light clear red, 2-3 cm dia., with usually 8 strong, longitudinal ridges. . . . . *E. uniflora*

16. Leaves elliptic, 0.8-2.5 cm wide, acute or slightly rounded at base; hypanthium not ridged; fruits purple-red to black, about 1 cm dia., without ridges. . . . . *E. ligustrina*

15. Flowers only exceptionally as above, most of those on any one plant in short racemes (i.e., arising from a short, leafless, axillary axis, not directly from a leaf axil); racemes in axils of leaves or at leafless nodes of former growing seasons; calyx lobes seldom longer than wide, often as wide as or wider than long; bracteoles mostly triangular or ovate, persistent through flowering and often until the fruit mature.

17. Leaves broad and coarse, pale beneath, 4-14 cm wide; flowering racemes densely pubescent; midvein in dried leaves convex on upper surface at least above base; petioles 6-12 × 1.5-4 mm; flowers large (calyx lobes (2-)3-5 mm long and wide; disk (2.5-)3-4 mm wide); fruits elongate, 1.5-2.5 cm long.

18. Lower leaf surface showing many glistening cells under a lens, the minute, inflated hairs covering the surface scarcely discernible as individuals; petioles 1.5-2 mm thick; leaves gray-green or yellow-green in drying; racemes usually one in each axil, flowers thus relatively few in leafy axils. . *E. greggii*

18. Lower leaf surface at length glabrate, when young thinly covered with pale, straight, minute, closely appressed hairs; petioles mostly 2-4 mm thick; leaves dark reddish-brown above in drying, paler beneath; racemes often several in an axil, flowers often 10 or more together, mostly at leafless nodes . . . . *E. duchassaingiana*

17. Leaves much narrower, with short or slender petioles, or if as above, then entire plant nearly glabrous even at flowering time; midvein more or less channeled or impressed on upper surface; fruits globose.

19. Leaves markedly whitened beneath, blackening above when drying; midvein impressed; young growth silky with bright coppery-red hairs. . . . . *E. albicans*

19. Leaves green on both sides, sometimes paler beneath, sometimes darkening in drying; plants glabrous or pubescent, never coppery-silky.

20. Flowers small (floral disk 0.9-1.5 mm wide; larger calyx lobes to 1.5 mm wide and almost as long); pedicels (except in *E. procera* and *E. dussii*) 1-5 mm long.

21. Pedicels 5-12 mm long; flowers always apparently fasciculate, axis of raceme 1-2 mm long or less.

22. Leaves 1.5-4(-6) cm long, apex always acuminate; petioles terete, 1 mm thick; pedicels glabrous; branchlets, petioles, and midveins of leaves hispidulous with erect hairs to 0.5 mm long. . . . . *E. procera*

22. Leaves 4-8 cm long, apex rounded; petioles flattened and margined below leaf, 1.5 mm wide or more; flowering pedicels sparsely and minutely hispidulous; branchlets and herbage glabrous as far as known. . . . . *E. dussii*

21. Pedicels 1-5 mm long, glabrous or puberulent, if glabrous, branchlets and herbage also glabrous; flowers often evidently racemose, axis of raceme to 5 mm long (rarely to 10 mm in *E. monticola*).

23. Leaves flat in drying, midvein neither grooved on upper surface nor depressed below general level of blade, but flat or even slightly elevated; blades mostly 2-5 × 1-2 cm; branchlets, inflorescences, and at least the young leaves puberulent or hispidulous.

24. Leaves mostly rounded at apex, obovate to elliptic, widest at or above middle, cuneate at base; petioles 1.5-3 mm long; pedicels 1-2 mm long. . . . . *E. foetida*

24. Leaves prolonged, narrow, and blunt at apex, ovate or lanceolate, usually widest at or below middle, acute or seldom cuneate at base; petioles 3-5 mm long; pedicels often 3-5 mm long. . *E. monticola*

23. Leaves commonly curved in drying, midvein grooved on upper surface and somewhat depressed below the general level; blades mostly 3-8 × 2-4 cm; pubescence various.

25. Pedicels and hypanthium densely hispidulous; leaves broadly elliptic, obtuse; bracteoles not contiguous; Dominica, Martinique .... *E. hodgei*

25. Pedicels and hypanthium glabrous, or pedicels sparingly puberulent; leaves ovate or elliptic, acute or acuminate; bracteoles contiguous, slightly connate; Lesser Antilles northward .... *E. axillaris*

20. Flowers larger (disk 2-4 mm wide; larger calyx lobes 1.5-4 mm long); pedicels commonly more than 5 mm long, glabrous.

26. Leaves fleshy or coriaceous, glossy, always finely wrinkled above after drying, elliptic-ovate with narrow, prolonged, tapering apices, 1-2 cm long, the blade including apex 3-8 cm long; plants glabrous or essentially so; pedicels 10-18 mm long .... *E. confusa*

26. Leaves smooth or somewhat reticulate-veined in drying, ovate to elliptic or lanceolate, acuminate but often broadly or obtusely so, the blade 3-10(-15) cm long; plants variously pubescent; pedicels 3-20(-30) mm long, or various.

27. Leaves 3-6 cm long, flat and dull, rigid with pale thickened margins, gray-green to brown when dry, very inconspicuously veined, ovate with relatively large but obtuse tips; plants essentially glabrous; pedicels 6-15 mm long; calyx lobes thick, broadly rounded, concavo-convex, spreading-ascending in flower and fruit, to 3.5 mm long and wide .... *E. rhombea*

27. Leaves mostly 5-10(-15) cm long, relatively thin, lustrous or somewhat reticulate-veiny above, mostly yellow-green when dry, ovate or elliptic-ovate, shortly but often conspicuously acuminate; plants sparingly pubescent or essentially glabrous; pedicels 3-20(-30) mm long; calyx lobes membranous, reflexed at anthesis, curved-ascending and concavo-convex in fruit, mostly 1.5-3.5 mm long, longer than wide.

28. Pedicels (7-)15-20(-30) mm long; flowers mostly 1 to 3 together in the axils of leaves of the current season; known from Martinique northward to Puerto Rico and Hispaniola .... *E. pseudopsidium*

28. Pedicels 3-7(-10) mm long; flowers often 8 to 10 or more together in cluster from leafless nodes; known from Guadeloupe southward into South America .... *E. lambertiana*

Eugenia albicans (O. Berg) Urban, Bot. Jahrb. Syst. **19:** 617. 1895.

Basionym: *Stenocalyx albicans* O. Berg, Linnaea **30:** 698. 1861.
Type: Guadeloupe, "in summo monte Morne-Caraïbe," *Richard s.n.* (holotype, P!).

Shrub or small tree to 5 m tall; young branchlets, leaves, and inflorescences densely clothed with bright coppery hairs. Leaves with petioles 5-8 mm long; blades elliptic, 3-8 × 1.5-3.5 cm, ca. 2(to 3) times as long as wide, base rounded to cuneate, apex prominently short-acuminate, midvein impressed as a furrow above, coriaceous, blackening in drying, very pale beneath under deciduous cover of red hairs. Racemes 2-4 mm long, bearing 1 to 4 pairs of flowers or flowers often solitary and subtended by narrow, deciduous bracts at lower nodes of new leafy branchlets; bracteoles deltoid-ovate, 1 mm long or less, acute, persistent. Flowers on pedicels 6-12 mm long; buds pyriform, 5 mm long, with large, cup-shaped, free calyx lobes enclosing petals until very late stage; calyx lobes rounded, the larger ones 3-4 mm long and wide; disk about 3 mm wide; style and stamens not seen. Fruits bright red, subglobose or slightly elongate, 1-1.3 cm long, 0.8-1 cm in diameter, crowned by incurved calyx.

General distribution: Trinidad and Tobago, Surinam, and French Guiana.

Distribution in Lesser Antilles: Guadeloupe!, Martinique!.

Common name: Dos blanc.

Eugenia axillaris (Sw.) Willd., Sp. Pl. **2:** 960. 1799.

Basionym: *Myrtus axillaris* Sw., Prodr. 78. 1788.
Type: Jamaica, *Swartz s.n.* (holotype, n.v.; isotypes, B-W #9526! (IDC 7440. 657: III. 7, photo!), M!).
Syn.: *Eugenia guadalupensis* DC., Prodr. **3:** 275. 1828. (Type: Guadeloupe, *Bertero s.n.* (holotype, G-DC!; IDC 2562. 541: I. 2, photo!).)

Shrub or small tree 2-5(-12) m tall, glabrous or inflorescences and youngest branchlets puberulent. Leaves with petioles 3-8 mm long; blades ovate or elliptic, 3-8 × 2-4(-5.5) cm, 1.5 to 2.5 times as long as wide, base rounded and then acute or cuneate, apex bluntly acute or short-acuminate, inconspicuously veined, midvein broadly sulcate to essentially flat above, coriaceous. Racemes 2-5 mm long, solitary or 2 to 3 superposed, axes squarish and to 1 mm thick in fruit, bearing 2 to 6 pairs of flowers; bracts persistent; bracteoles connate, forming a cupule 1 mm wide or slightly more, obtuse, ciliate, persistent. Flowers on pedicels 1.5-2.5(-4) mm long; buds obovoid, 1.5-2.5 mm long; hypanthium glabrous; calyx lobes broadly rounded, 0.5-1.5 mm wide, ciliate; stamens ca. 50; disk 1-1.5 mm wide; style 3-5 mm long. Fruits globose or oblate, 1-2 cm in diameter, black or reddish-black, edible.

General distribution: Florida, Bahamas, Bermuda, Cuba, Atlantic coast of Mexico, Jamaica, Hispaniola, Puerto Rico, Virgin Islands.

Distribution in Lesser Antilles: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, Guadeloupe!, Marie Galante!, La Désirade!.

Common name: Merisier.

Eugenia biflora (L.) DC., Prodr. **3:** 276. 1828.

Basionym: *Myrtus biflora* L., Syst. Nat. ed. 10, **2:** 1056. 1759.
Type: Jamaica, *P. Browne s.n.* (holotype, LINN 637.6).
Syn.: *Myrtus virgultosa* Sw., Prodr. 79. 1788. (Type: Jamaica, *Swartz s.n.* (holotype, BM!).)
Myrtus pallens M. Vahl, Symb. Bot. **2:** 57. 1791. (Type: America, *Forseith s.n.* (holotype, C!).)
Eugenia ?pallens (M. Vahl) DC., Prodr. **3:** 284. 1828, not *E. pallens* Poiret (1813).
Eugenia virgultosa (Sw.) DC., Prodr. **3:** 280. 1828.
Eugenia biflora (L.) DC. var. *pallens* (M. Vahl) Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 629. 1895.
Eugenia biflora (L.) DC. var. *virgultosa* (Sw.) Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 628. 1895.

Eugenia richardiana O. Berg, Linnaea **30:** 694. 1861. (Type: Antigua, *Richard s.n.* (P); Field Mus. Neg. 37011!.)

Shrub or small tree to 5 m tall, more or less silky- or appressed-pilose, branchlets, inflorescences, and at least youngest leaves rather thinly beset with upwardly pointing, white to pale reddish hairs to 0.5 mm long. Leaves with petioles 3-7(-12) mm long; blades broadly elliptic-ovate to ovate or lanceolate, 3-7 × 1-3.5 cm, 1.5 to 2 times as long as wide (or in an occasional form, 2.5 to 4 times as long as wide), base rounded to cuneate, apex prominently acuminate or attenuate (very tip usually obtuse, occasionally with a sharp, hard point), midvein impressed or sulcate above, subcoriaceous, lustrous and dark green, and often impressed-punctate (at least in age) on upper surface. Racemes 1-4 cm long, sometimes 2 superposed per axil, bearing up to ca. 10 flowers (commonly 8); bracts ovate or elliptic, 1-2 mm long, acute, subpersistent; bracteoles broadly ovate, conduplicate, 1.5 mm long, acute, more or less connate, persistent. Flowers on ascending pedicels 3-8(-12) mm long; buds 3-4 mm long; hypanthium canescent (or occasionally quite glabrous), usually notably more pubescent than subtending bracteoles; calyx lobes broadly rounded, convex, silky inside, the larger ones 2-2.5 mm long and wide; stamens ca. 30 to 50; disk 4-angled, 2-2.5 mm wide; style 4.5-7.5 mm long. Fruits oblong-ellipsoid or subglobose, 6-8 mm long and almost as thick, glandular-verrucose. (Description primarily from plants of Puerto Rico and the Virgin Islands.)

GENERAL DISTRIBUTION: Northeastern Guatemala, Belize, Chiapas, Jamaica, Hispaniola, Puerto Rico, Virgin Islands, lowlands of northern South America, Panama, and Costa Rica.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Antigua!, Guadeloupe!, Martinique!.

NOTES: For the extensive synonymy of this species, see also Bot. Jahrb. Syst. **19:** 628-632. 1895; Field Mus. Nat. Hist., Bot. Ser. **13** (pt. 4): 684. 1958; and Mem. New York Bot. Gard. **18:** 167. 1969.

This species is extraordinarily variable in leaf form and in the architecture of the inflorescence, as well as in pubescence. Jamaican populations are sometimes treated as distinct varieties; *E. virgultosa* is treated as a separate species by some authors. The plant of Puerto Rico, the Virgin Islands, and Guadeloupe has been called var. *lancea*.

In South America and continental North America, the species may almost invariably be recognized by the definitely mucronate-tipped and impressed-punctate leaves, and by having the inflorescence silky-pubescent, this to a greater degree than in most West Indian specimens. *Duss 208*!, from Martinique, is of this type. Apparently it is not common in the Lesser Antilles.

Eugenia chrysobalanoides DC., Prodr. **3:** 285. 1828.

Type: Guadeloupe, *Perrottet s.n.* (holotype, G-DC; IDC 2562. 543: II. 8, photo!.).

Small or medium-sized tree; inflorescences and young growth densely pubescent with appressed or erect, straight, yellowish-white or pale reddish, unbranched hairs to 0.5 mm long. Leaves with petioles 5-10(-15) mm long; blades ovate, 6-11 × 3-6 cm, ca. twice as long as wide, base rounded and then somewhat cuneately prolonged, apex bluntly acuminate, midvein impressed above. Racemes 2-4.5 cm long, mostly bearing 6 to 8 flowers; bracts ovate, conduplicate, 1.5-2.5 mm long, dark, gland-dotted, persistent; bracteoles deltoid-ovate, 1.8-2.3 mm long, acute, more or less united, persistent. Flowers on pedicels 4-8 mm long; buds 4.5 mm long; hypanthium canescent or sparingly pale-pubescent; calyx lobes broadly rounded, concave, unequal, the larger pair 3-4 mm long and wide; stamens 125 to 150; disk 3-4 mm wide; style 5-6.5 mm long. Fruits subglobose, ca. 1 cm in diameter.

General distribution: Known only from the Lesser Antilles.

Distribution in Lesser Antilles: Nevis!, Guadeloupe!, Martinique!, Barbados!.

Common name: Grand merisier.

Note: This appears to be the only Antillean representative of the group of South American species including *E. polystachya* Rich., *E. muricata* DC., and *E. patens* Poiret, all known from the Guianas.

Eugenia coffeifolia DC., Prodr. **3:** 272. 1828.

Lectotype: French Guiana, *Patris s.n.* (G-DC!; IDC 2562. 539: III. 3-5, photos!.).
Syn.: *Myrciaria ramiflora* O. Berg, Linnaea **27:** 334. 1856, not *Eugenia ramiflora* Desv. (1825). (Type: St. Vincent, *Anderson s.n.* (holotype, W!; isotypes, G!, K!).)

Small tree to 5-10 m tall, essentially glabrous; vegetative buds strigose with reddish or pale hairs. Leaves with petioles 4-9 mm long; blades elliptic, ovate, or ovate-lanceolate, (6-)8-18 × 2.5-5(-8) cm, 2 or 3 times as long as wide, base rounded and then often cuneately narrowed, apex narrowly acuminate, midvein impressed above, lateral and marginal veins forming a distinct gridiron pattern beneath. Spikelet axes often several together, to 3 mm long, each bearing 1 to 6 pairs of flowers; bracts indurate, reddish pubescent, persistent; bracteoles less than 1 mm long, to almost 1.5 mm wide, often nearly covering pubescent hypanthium, persistent. Flowers sessile; buds 2.5 mm long; calyx lobes rounded, unequal, the larger ones more than 1 mm wide; stamens ca. 25; disk ca. 1-1.3 mm wide; style 5-7 mm long. Fruits oblate, 0.7-1.5 cm in diameter, ovules 2 in each of 2 locules.

General distribution: Northeastern Venezuela, Surinam, French Guiana, eastern Amazonian Brazil.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, St. Lucia!, St. Vincent!.

Common names: Debasse blanc, merisier-bois, bois violet.

Eugenia confusa DC., Prodr. **3:** 279. 1828.

Type: Guadeloupe, *Bertero s.n.* (n.v.).
Syn.: *Eugenia krugii* Kiaerskov, Bot. Tidsskr. **17:** 259, *t. 9A*. 1890. (Type: Puerto Rico, *Sintenis 240* (C).)

Shrub or small tree 2-5 m tall, essentially glabrous; vegetative buds strigose. Leaves with petioles 5-9 mm long; blades elliptic-ovate, 3-8 × 1.5-4 cm, 1.5 to 3 times as long as wide, base rounded or commonly cuneate, apex abruptly acuminate to caudate, the acumen 1-2 cm long, midvein forming a pale concave furrow in green upper surface, or nearly flat, lateral veins inconspicuous except as fine irregular wrinkles, coriaceous, glossy, always finely wrinkled above after drying. Racemes 1-5 (rarely 8-15) mm long, bearing 1 to 3(or 4) pairs of flowers; bracts short, strigose, persistent; bracteoles distinct, narrowly triangular, 0.5-1.5 mm long, acute, often deciduous. Flowers on very slender pedicels 1-1.8 cm long; buds pyriform, 3-4.5 mm long; calyx lobes ovate, 1.5-2.5 mm long, obtuse; stamens ca. 30; disk 2.5-3.5 mm wide; style 5 mm long. Fruits globose, probably 5-10 mm in diameter.

GENERAL DISTRIBUTION: Southern Florida, Bahamas, Cuba, Jamaica, Hispaniola, Puerto Rico.

DISTRIBUTION IN LESSER ANTILLES: Antigua, Guadeloupe!, Marie Galante!, Dominica, Martinique!, St. Lucia!.

Eugenia cordata (Sw.) DC. var. **cordata**, Prodr. **3:** 272. 1828.

Basionym: *Myrtus cordata* Sw., Prodr. 78. 1788; Fl. Ind. Occid. **2:** 893. 1798.
Type: West Indies, *von Rohr s.n.* (holotype, BM!).
Syn.: *Tricera cordifolia* Willd., Sp. Pl. **4:** 339. 1805. (Type: West Indies, *Vahl s.n.* (holotype, B-W #17385; IDC 7440. 1255: III. 8, photo!).)
Myrciaria? stirpiflora O. Berg, Linnaea **30:** 702. 1861. (Type: St. John, *Richard s.n.* (P!).)
Eugenia? stirpiflora (O. Berg) Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 672. 1895.

Shrub 1-13 m tall; branchlets minutely hispidulous, plants otherwise essentially glabrous except for margins of bracts, bracteoles, and calyx lobes. Leaves sessile; blades elliptic-ovate to suborbiculate, 1-4 × 0.7-2.7 cm, often ca. 1.5 times as long as wide, base cordate, apex broadly rounded to obtuse or retuse, midvein pale, convex above, rigidly coriaceous with pale thickened margins, often drying chocolate-brown beneath and blackening above. Inflorescences sessile axillary fascicles, seldom more than 2 mm long, 1- to 4-flowered, sometimes a pair superposed per axil; bracts persistent; bracteoles ovate, 0.5-0.8 mm long, obtuse, contiguous, persistent. Flowers sessile; buds pyriform, 2-2.5 mm long; hypanthium glabrous; calyx lobes broadly rounded, 1.5-2 mm long, membranous, reflexed in flower; stamens 30 to 35; disk 1.5-1.8 mm wide; style 5-7 mm long. Fruits ellipsoid or obovoid, 5-6 mm long, 4 mm in diameter, red or black.

GENERAL DISTRIBUTION: Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!.

Eugenia cordata (Sw.) DC. var. **sintenisii** (Kiaerskov) Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 656. 1895. FIGURE 174.

Basionym: *Eugenia sintenisii* Kiaerskov, Bot. Tidsskr. **17:** 263, *t. 7C & fig. 3.* 1890. Type: Puerto Rico, *Sintenis 2101* (C).

Shrub or small tree to 3-5 m tall; branchlets at first minutely hispidulous, hairs often absent when branchlets mature, plants otherwise glabrous except minutely ciliate margins of bracts, bracteoles, and calyx lobes. Leaves sessile or petioles 1-2 mm long, thick; blades broadly elliptic, elliptic-ovate, or elliptic-obovate, 2-5(-8) × 1.2-3(-5) cm, mostly 1.25 to 2 times as long as wide, base broadly rounded to acute, apex rounded or obtuse, margin usually cuneately prolonged to very base, pale, thickened, coriaceous, often drying chocolate-brown beneath and blackening above. Flowers as in var. *cordata* but even more closely sessile, the persistent, spurlike axes hardly 1-1.5 mm long after flowers fall; disk to 2-2.2 mm wide. Fruits subglobose, 7-9 mm in diameter.

GENERAL DISTRIBUTION: Puerto Rico, Virgin Islands?.

DISTRIBUTION IN LESSER ANTILLES: Barbuda!, Antigua!, Saba!, St. Eustatius, St. Kitts!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!.

COMMON NAMES: Zicaque, white wattle.

Eugenia domingensis O. Berg, Linnaea **27:** 296. 1856.

Lectotype: Hispaniola, *Rob. Schomburgk 36,* (formerly B).
Syn.: *Eugenia aeruginea* sensu Griseb., Fl. Brit. W. Indian Is. 237. 1860, quoad spec. *Imray 1860* (K!) et sensu Urban, Bot. Jahrb. Syst. **19:** 623. 1895, non DC. (1828); cf. N. Y. Sandwith, Kew Bull. **1934:** 124. 1934.

Tree to 10 m tall or more; branchlets and (especially) inflorescences rusty-pubescent with closely appressed and almost equally 2-branched hairs. Leaves with petioles 6-10 mm long; blades oblong-elliptic to ovate, (5-)8-12 × 2-5.5 cm, ca. twice as long as wide, base rounded and then acute, apex acuminate, midvein narrowly impressed above, coriaceous, impressed-punctate above, soon glabrate, or glabrous from the first. Racemes 2-5 cm long, with 2 to 5 pairs of widely spaced flowers; bracts broadly deltoid-ovate, 1-1.5 mm long, persistent; bracteoles united into a cupule beneath flower, broadly ovate, 1.3-1.8 mm long, obtuse, persistent. Flowers on pedicels 2-5(-8) mm long; buds 4-6 mm long; hypanthium densely pubescent; calyx lobes broadly rounded, 3-4 mm wide, wider than long, sparsely pubescent outside, densely so within; stamens ca. 150; disk 3-4 mm wide, nearly glabrous; style 8-9 mm long. Fruits short-ovoid, to 1.5 cm long and 1 cm thick.

GENERAL DISTRIBUTION: Eastern Cuba, Hispaniola, Puerto Rico, Trinidad.

Distribution in Lesser Antilles: Dominica, Martinique, St. Vincent, Barbados!.

Common name: Black cherry.

Eugenia duchassaingiana O. Berg, Linnaea **27:** 225. 1856.

Type: Guadeloupe, *Duchassaing s.n.* (holotype, B, presumably destroyed).

Tree 5-10 m tall, with stout branches and large, coarse leaves; branchlets puberulent; inflorescences pale rusty-pubescent. Leaves with petioles 8-12 mm long, 1.5-4 mm thick; blades ovate, 12-25 × 7-14 cm, ca. twice as long as wide, base broadly rounded, apex short-acuminate, midvein convex above, lateral veins 6 to 8 pairs, not forming a strong marginal vein, pale beneath. Inflorescences fascicled at leafless nodes, often several together, the longer axes 5-6 mm long, spurlike, with 5 or 6 pairs of flowers; bracts obtuse, persistent; bracteoles contiguous or united at base, 1-2.5 mm long, obtuse, persistent. Flowers on slender pedicels (8-)10-16 mm long, to 1 mm thick in fruit; buds ca. 6 mm long; hypanthium narrowly campanulate, pale-pubescent; calyx lobes in unequal pairs, broadly rounded, ca. 3 mm wide, gland-dotted; stamens more than 100; disk ca. 3 mm wide, densely pubescent; style 7-9 mm long. Fruits narrowly obovoid to fusiform, 1.5-2.5 cm long, 6-10 mm in diameter, thin-walled, one-seeded, yellow or dull orange.

General distribution: Restricted to Lesser Antilles.

Distribution in Lesser Antilles: Guadeloupe!, Martinique!, St. Lucia!, St. Vincent!.

Common names: Grosse merise, grand merisier.

Eugenia dussii Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 646. 1895.

Lectotype: St. Lucia, *Anderson s.n.* (K!, photo A!).

Shrub or tree, essentially glabrous; bracts, bracteoles, and pedicels minutely hispidulous at anthesis and hypanthium sparingly hispidulous at base of calyx. Leaves with petioles ca. 5 mm long; blades elliptic or obovate, 4-8 × 2.5-3.5(-4.5) cm, 1.5 to 2 times as long as wide, base rounded and then more or less cuneately narrowed into expanded summit of petiole, apex rounded, midvein flat above or shallowly concave near base, or in older leaves apparently convex, coriaceous, very densely gland-dotted beneath. Inflorescences usually at leafy nodes, with 1 to 3 pairs of flowers per axis, the axes 1-2 mm long or less, sometimes 2 or 3 together per leaf axil; bracts very small and indurate; bracteoles ovate-deltoid, more or less connate and forming an involucre 1 mm wide, ciliate, persistent. Flowers on pedicels 5-6(-10) mm long, probably glabrous at maturity; buds not seen, probably 2.5-3 mm long; calyx lobes in unequal pairs, rounded, much broader than high, the larger ones 1.5 mm wide, all rolled back with undulating margin in flower; stamens ca. 50 to 75; disk 1.5 mm wide, glabrous; ovules 10 to 12 in each locule; style 5-6 mm long. Fruits probably globose or ellipsoid, about 1 cm long.

General distribution: Not certainly known except from the type specimen, which was collected by Alexander Anderson, and which may not have come from St. Lucia.

Note: It is probable that *E. dussii* is the same as *Eugenia cotinifolia* Jacq. (Observ. Bot. **3:** 3, *pl. 53*), and *Caryophyllus cotinifolius* Miller (Gard. Dict. ed. 8, Caryophyllus no. 4), which were described independently in the same year (1768), both based on material that may have been West Indian in origin. Jacquin's plant is now known only from the inadequate original illustration, and Miller's from a fruiting specimen that is very similar in all observable characters to Anderson's plant from St. Lucia. In the description above, the characters of the fruit, and larger dimensions relating to leaf width and pedicel length, are taken from Miller's plant.

Urban's description of *Eugenia dussii* included some extraneous elements. The material from Guadeloupe, *Duss 2200*, consisted at least in part of leaves of *E. pseudopsidium* or *E. lambertiana*, and fruits and pedicels probably of *E. monticola.*

Eugenia foetida Pers., Syn. Pl. **2:** 29. 1806.

Type: St. Croix, *Richard s.n.* (P-JU #13939; IDC 6206. 1026: II. 3, photo!).

Syn.: *Myrtus buxifolia* Sw., Prodr. 78. 1788; Fl. Ind. Occid. **2:** 899. 1798. (Type: Hispaniola, *Swartz s.n.* (BM!).)

Myrtus axillaris Poiret *in* Lam., Encycl. **4:** 412. 1797, non Sw. (1788). (Type: Hispaniola, *Jos. Martin s.n.* (holotype, P-LA; IDC 6207. 234: II. 2, photo!).)

Eugenia buxifolia (Sw.) Willd., Sp. Pl. **2:** 960. 1799, non Lam. (1789).

Eugenia myrtoides Poiret *in* Lam., Encycl. Suppl. **3:** 125. 1813. nom. nov. for *Myrtus buxifolia* Sw. and *Eugenia buxifolia* (Sw.) Willd.

Myrtus poiretii Sprengel, Syst. Veg. **2:** 483. 1825, nom. nov. *Myrtus axillaris* Poiret.

Eugenia? poiretii (Sprengel) DC., Prodr. **3:** 274. 1828.

Eugenia triplinervia O. Berg, Linnaea **27:** 190. 1856, nom. illegit.

Eugenia lateriflora sensu Griseb., Fl. Brit. W. Indian Is. 263. 1860, non Willd. (1799), attested by Urban.

Small tree to 12 m tall, trunk to 12 cm in diameter; branchlets, inflorescences, and at least young leaves puberulent. Leaves with petioles 1.5-3 mm long; blades obovate or elliptic, 2.5-5.5 × 1-2.5 cm, 1.5 to 2.3 times as long as wide, base mostly cuneate, apex rounded, midvein on upper surface flat or sulcate, often persistently pubescent. Racemes 1-4 mm long, solitary or 2 or 3 superposed, crowded, with 2 to 5 pairs of flowers; bracteoles ovate, 0.4-0.6 mm long, not connate, persistent. Flowers on pedicels 1-2 mm long; buds 1.5 mm long; hypanthium lightly pubescent; calyx lobes ca. equal, rounded, 0.5-0.7 mm long and wide; stamens ca. 40; disk 1-1.5 mm wide; style 3.5 mm long. Fruits globose or oblate, ca. 5 mm in diameter, black.

General distribution: Belize, Yucatán, southern Florida, Bahamas, Cuba, Jamaica, Hispaniola, Puerto Rico, Virgin Islands.

Distribution in Lesser Antilles: Anguilla!, St. Martin!, St. Barts!.

COMMON NAME: White wattling.

NOTES: In some Antillean specimens the branchlets are glabrous or nearly so, a fact noted by Urban (Bot. Jahrb. Syst. **19:** 639. 1895).

This species is rather precariously distinguishable from *Eugenia monticola*; the two have in fact sometimes been treated as conspecific, notably by Berg, who coined the illegitimate name *Eugenia triplinervia* to cover all the forms of what he regarded as a highly polymorphic species. The two taxa have traditionally been separated by leaf form, and by the somewhat longer petioles and pedicels of *E. monticola*. In the northern islands of the Lesser Antilles, at the southern limit of *E. foetida* in the Caribbean, some populations on St. Martin seem to share the characters of the two taxa. A few individuals would be called *E. foetida* without any question, but most of the plants on this island have leaves like those of *E. monticola*, but the very short petioles and pedicels of *E. foetida*.

Eugenia gregii (Sw.) Poiret *in* Lam., Encycl. Suppl. **3:** 126. 1813.

Basionym: *Myrtus gregii* Sw., Prodr. 78. June-July 1788; Fl. Ind. Occid. **2:** 896. 1798. Type: Dominica, *J. Greg* (holotype, BM!).

Syn.: *Greggia aromatica* Gaertner, Fruct. Sem. Pl. **1:** 168, *t. 33.* Dec. 1788. (Type: Barbados, collector unknown (holotype, BM).)

Eugenia sieberiana DC., Prodr. **3:** 277. 1828. (Type: Trinidad, *Sieber 222* (holotype, G-DC!; IDC 2562. 541: III. 1, photo!).)

?*Eugenia sieberiana* DC. var. *crassifolia* O. Berg, Linnaea **30:** 690. 1861. (Type: Martinique, *Richard s.n.* (P).)

Tree 5-8 m tall, glabrous except inflorescences and lower leaf surface. Leaves with petioles 6-12 mm long; blades broadly elliptic-ovate, 6-14 × 4-9 cm, mostly 1.5 to 2 times as long as wide, base rounded or obtusely angled, apex obtusely short-acuminate, midvein convex above, coriaceous, ashy-gray beneath, surface closely covered by minute scurfy puberulence of translucent, light-reflecting hairs. Racemes 3-10 mm long, bearing 1 to 3 pairs of flowers, axis and flowers densely rufous-puberulent with scurfy hairs like those of leaves; bracts oblong, soon deciduous; bracteoles ovate, 1.5 mm long, obtuse, contiguous, persistent. Flowers on pedicels 5-10 mm long; buds 6(-8?) mm long; calyx lobes imbricate, partly united in bud, splitting apart in anthesis, broadly rounded, to 5 mm long and wide, remaining cup-shaped; disk ca. 4 mm wide; style and stamens not seen. Fruits elongate, ellipsoid-obovoid, 1.5-2 cm long, 1-1.2 cm in diameter.

GENERAL DISTRIBUTION: Limited to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

COMMON NAMES: Bois couronne, goyavier bâtard.

Eugenia gryposperma Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 650. 1895.

Isosyntypes: Martinique, *Duss 214, 1242* (NY!, photo at A!).

Shrub or small tree 2-5 m tall, glabrous in age. Leaves sessile; blades broadly ovate, 5-9 × 3.5-8 cm, 1.3 to 1.5 times as long as wide, base cordate, apex shortly and obtusely acuminate, midvein impressed as a broad concave channel above, or nearly flat, coriaceous, veiny. Flowers fascicled, 1 to 4 together in upper axils; bracts small; bracteoles ovate to suborbiculate, 0.6-0.8 mm long, apex rounded, persistent; pedicels 5-15 mm long; buds 8-10 mm long; calyx lobes concavo-convex, imbricate in bud, the larger pair ovate, 5-6 mm long and wide, obtuse or rounded; stamens 150 to 200; disk (in fruit) 4.5-5 mm wide; style not seen. Fruits globose or ovoid, 1.5-2 cm in diameter, crowned by more or less spreading, or erect and incurved, calyx, purple-black.

GENERAL DISTRIBUTION: Known only from near the type locality, Martinique, Montagnes du Vauclin, at an elevation of about 500 m.

COMMON NAMES: Goyavier bâtard, cerise-montagne.

Eugenia hodgei McVaugh, J. Arnold Arbor. **54:** 310. 1973.

Type: Dominica, *Hodge 2230* (holotype, GH!).

Tree 8 m tall, with trunk 10 cm in diameter, glabrous at maturity; hypanthium and pedicels closely and minutely hispidulous with hairs ca. 0.1 mm long, calyx lobes, bracts, and bracteoles ciliate but otherwise nearly glabrous. Leaves with petioles 4-5 mm long; blades elliptic to obovate or almost suborbiculate, 3.5-6.5 × 2.5-4 cm, almost as wide as long, or usually 1.5 to 2 times as long as wide, base acute or margins meeting almost at a right angle, apex rounded or obtuse, midvein shallowly channeled above, at least toward base, coriaceous, dark green, smooth, and lustrous above, pale beneath. Racemes solitary or 2 together at leafless nodes, each with 1 to 4 pairs of flowers; axes 2-3 mm long or less, 1.5 mm thick, covered by short hard bases of old bracts; bracteoles more or less square or wider than long, to 0.5 × 0.7 mm, nearly or quite contiguous, ciliate especially on distal margin. Flowers on pedicels 2.5-5 mm long; buds and open flowers not seen; hypanthium just after flowering obovoid, ca. 1.3 mm long and thick, base slightly rounded, apex truncate; calyx lobes broadly rounded, the larger ones 0.7-1 × 1.5-1.7 mm, pale and translucent, dotted with large glands; stamens ca. 50; disk prominent, 1.5 mm wide, made pale by large stamen scars, minutely and sparsely hispidulous, center ca. half as wide, glabrous, depressed; style not seen.

GENERAL DISTRIBUTION: Known only from the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Martinique!.

Eugenia lambertiana DC., Prodr. **3:** 270. 1828.

Type: "St. Vincent," *Anderson s.n.* ex herb. Lambert (holotype, G-DC!; IDC 2562. 539: I. 4, photo!).

Syn.: *Eugenia smaragdina* O. Berg, Linnaea **27:** 218. 1856. (Type: Guadeloupe, *Duchassaing s.n.* (B).)

Eugenia flavo-nigra O. Berg, Linnaea **30:** 691. 1861. (Lectotype and type of var. *guadalupensis*: Guadeloupe, *Richard s.n.* (P, photo A!).)

Eugenia flavo-nigra O. Berg var. *guadalupensis* O. Berg, Linnaea **30:** 691. 1861.

Eugenia flavo-nigra O. Berg var. *martinicensis* O. Berg, Linnaea **30:** 692. 1861. (Type: Martinique, *Richard s.n.* (holotype, P, photo A!).)

Shrub or tree to 10(-20) m tall, nearly glabrous; bracts, bracteoles, petals, and calyx lobes minutely ciliate. Leaves with petioles 5-7 mm long; blades ovate, elliptic-ovate, or lance-ovate, 5-10(-15) × 2-4(-5.5) cm, 2 to 2.5(to 3.2) times as long as wide, base rounded or acute and then commonly cuneately narrowed into petioles, apex prominently acuminate, midvein concave to rather narrowly impressed above. Flowers sometimes in axils of leaves, usually in fascicles at leafless nodes, often 2 to 5 pairs on each of 2 very short raceme axes crowded together on each side of nodes; bracts very small and indurate; bracteoles triangular and acute, or obtuse, 1 mm long or less, distinct on two sides of pedicel, usually persistent; pedicels 3-7 (rarely 10) mm long; buds 2-4.5 mm long; calyx lobes in unequal pairs, broadly rounded, the larger ones 1.5-2.5(-3.5) mm long and ca. as wide, membranous or papery, spreading or reflexed at anthesis, more or less flattened over disk in fruit, somewhat concavo-convex; stamens 75 to 100; disk 2-3 mm wide, often 4-sided, coppery-pubescent on staminal ring; style 6-7 mm long. Fruits globose, 1-2.5 cm in diameter, with thin flesh over one large seed, yellow or orange.

GENERAL DISTRIBUTION: Northeastern Venezuela, Guianas to eastern Brazil, and inland in the Amazon and Orinoco basins.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

NOTES: This species is more difficult to delimit satisfactorily than any other member of the Myrtaceae in the Lesser Antilles. There is no single feature that separates it from *Eugenia pseudopsidium.* Many new field observations are needed. Also as yet unexplained is the unusual extent to which *E. lambertiana* seems to vary in size of fruit, in size and shape of flower parts (especially of the calyx), in length and thickness of pedicels, and in leaf shape. Usually the species may be recognized by the combination of fascicled, short-pediceled flowers, glabrous herbage, small distinct bracteoles, and ovate, lustrous leaves with midvein impressed above. Some forms, however, may conceivably represent another species:

On Dominica a form with numerous flowers at leafless nodes (as in *E. lambertiana)* suggests *E. pseudopsidium* by its long slender pedicels and large calyx lobes (*Imray 182* (GH!); *Lloyd 910* (NY!).) Other specimens from Dominica (*Hodge 3056*, *3258* (GH!) and St. Lucia (*Proctor 18164* (A!)), are unusual in having smaller flowers and more slender pedicels than usual in *E. lambertiana.*

Superficially almost indistinguishable from *E. lambertiana* is the Antillean plant that Urban cited as *E. tapacumensis* O. Berg (Linnaea **27:** 222. 1856). *Duss 188* and *Hahn 1226*, from Martinique, would be referred at once to *E. lambertiana*, except that the bracteoles beneath the flower are obtuse and connate, forming a small, 2-lobed cupule 2.5-3 mm wide as in South American specimens of *E. tapacumensis.* The principal range of the latter species is from Guyana (the type region) to eastern Brazil (at least to Piauhi!), and inland in the Amazon basin. It seems not to be reported from Trinidad or Tobago. A report from St. Vincent on the basis of a sterile specimen is unverifiable. Its occurrence in Martinique is rather unusual, but it was cited as a native plant by Duss (Fl. Phan. Antill. Franc. 271. 1897), and its vernacular name was given as bois grillé. The usual name for *E. lambertiana*, according to Duss, is merisier, or, on Guadeloupe, merisier jaune.

The type locality of *E. lambertiana* is cited by de Candolle as St. Vincent on the basis of an unspecified collection ex herb. Lambert. In Alexander Anderson's unpublished Hortus there is a description that corresponds with *E. lambertiana*, based on a plant introduced from Guyana and cultivated in the St. Vincent Botanic Garden. It is well established that Anderson sent specimens to A. B. Lambert, and that several of these collections ended up in the de Candolle herbarium subsequent to Lambert's death. It is very likely that the unidentified specimen at G-DC is this collection.

Eugenia ligustrina (Sw.) Willd., Sp. Pl. **2:** 962. 1799.

Basionym: *Myrtus ligustrina* Sw., Prodr. 78. 1788.

Type: Hispaniola, *Swartz s.n.* (n.v.; presumed isotypes at B-W #9508! (IDC 7440. 656: III. 9, photo!), G-DC!, M!).

Syn.: *Myrtus cerasina* M. Vahl, Symb. Bot. **2:** 57. 1791. (Type: "in insulis Caribaeis," *Pflug s.n.* (holotype, C!; IDC 2201. 51: I. 3, photo!).)

Shrub or small tree 2-7 m tall, nearly glabrous; young branchlets puberulent. Leaves with petioles 2-5 mm long; blades narrowly or broadly elliptic, 2-5 × (0.8-)1-2.5 cm, mostly 1.5 to 2.5(to 3.5) times as long as wide, base acute or slightly rounded, apex obtuse or retuse, margin often revolute, scarcely veiny, midvein impressed above, coriaceous, rich green and shiny above, paler beneath. Flowers produced in pairs at lower nodes of new leafy shoots, solitary in axils of narrow, scarious, deciduous bracts 5-10 mm long; bracteoles triangular or linear, 1-5 mm long, sometimes borne well below hypanthium on a pseudostalk 0.5-1 mm long, deciduous at anthesis; pedicels slender, 1.8-3.5 cm long; buds 5-8 mm long, globe of petals much longer than hypanthium; calyx lobes oblong or tongue-shaped, 3-5 mm long, obtuse, thin, first reflexed, then erect in fruit; stamens ca. 50; disk 1.5-2.5 mm wide; style 5 mm long. Fruits subglobose, ca. 1 cm in diameter, soft, black.

GENERAL DISTRIBUTION: Cuba, Jamaica, Hispaniola, Puerto Rico, Virgin Islands, Trinidad and Tobago, northeastern Venezuela, Surinam, reported from southeastern Brazil.

Distribution in Lesser Antilles: St. Martin!, St. Barts, Barbuda!, Antigua, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Les Saintes!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Barbados!.

Common names: Grosse merise, merise noire, merisier, cerise noire, black cherry, blackberry.

Eugenia monticola (Sw.) DC., Prodr. **3:** 275. 1828.

Basionym: *Myrtus monticola* Sw., Prodr. 78. 1788.
Type: Jamaica, *Swartz s.n.* (BM!).
Syn.: *Eugenia maleolens* Pers., Syn. Pl. **2:** 29. 1806. (Type: St. Croix, *Richard s.n.* (holotype, P-JU #13927A!; IDC 6206. 1026: I. 7, photo!).)
Eugenia baruensis Jacq. var. *latifolia* DC., Prodr. **3:** 275. 1828. (Type: Hispaniola, *Bertero s.n.* (holotype, G-DC, n.v.; IDC 2562. 541: I. 4, photo!).) The identity attested by Urban.
Eugenia flavo-virens O. Berg, Linnaea **27:** 184. 1856. (Lectotype: St. Thomas, *Oersted 18* (n.v.; presumed isolectotype (C!).)
Eugenia obtusata Willd. ex O. Berg, Linnaea **27:** 240. 1856. (Type: Locality unknown, *Humboldt s.n.* (B-W #9487!; IDC 7440. 656: I. 2, photo!).)
Eugenia canescens O. Berg, Linnaea **29:** 239. 1858. (Type: Guadeloupe, *Duchassaing s.n.* (formerly at B, identity attested by Urban).)
Eugenia insularis O. Berg, Linnaea **29:** 238. 1858. (Syntypes: "Jamaica et Guadeloupe," *Bertero s.n.* (formerly at B, their identity attested by Urban).)
Eugenia obtusata sensu Griseb., Fl. Brit. W. Indian Is. 237. 1860 (e.g., Dominica, *Imray s.n.* (K!).)
Eugenia monticola (Sw.) DC. var. *latifolia* (DC.) Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 636. 1895.
Eugenia monticola (Sw.) DC. var. *flavo-virens* (Berg) Stehlé & Quentin, Fl. Guadeloupe **2**(3): 65. 1949.

Shrub or small tree to 8-10 m tall with trunk to 10 cm in diameter, hispidulous. Leaves with petioles 3-5 mm long; blades ovate or lanceolate, 1.5-4 × 0.5-2 cm, 2 to 3(to 4) times as long as wide, usually much more prolonged distally, base cuneate (usually) or acute, apex narrow and blunt, acute or acuminate or even caudate-acuminate, midvein flat or convex above. Racemes 3-6(-16) mm long, solitary or sometimes 2 or 3 superposed, crowded, with 3 or 4 pairs of flowers; bracteoles ovate, ca. 0.5 mm long and wide, nearly contiguous at base, persistent; pedicels (1-)3-5 mm long; buds pyriform, 2 mm long; hypanthium puberulent; calyx lobes in unequal pairs, broadly rounded, 0.8-1 mm wide and nearly as long; stamens ca. 50; disk ca. 0.9 mm wide; style ca. 4-5.5 mm long. Fruits globose, ca. 5 mm in diameter, probably black.

General distribution: Cuba, Jamaica, Hispaniola, Puerto Rico, Virgin Islands, Trinidad and Tobago, northern Venezuela and Colombia, and the Guianas.

Distribution in Lesser Antilles: Anguilla, St. Martin!, St. Barts!, Antigua!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada, Barbados!.

COMMON NAMES: Merisier petite feuille, merisier, bois petite feuille.

NOTE: A scarcely distinguishable form, including *E. capuli* (Schldl. & Cham.) O. Berg and several weakly separable "species," ranges from Guatemala and Honduras north in the Mexican lowlands to Tamaulipas, Jalisco, and Sinaloa.

Eugenia octopleura Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 653. 1895.

Lectotype: Guadeloupe, *Duss 2759* (NY!, photo at A!).

Shrub or tree 3-7 m tall, appressed-pubescent when young; inflorescences densely beset with yellowish or pale rufous, 2-branched hairs; branchlets, petioles, and lower surfaces of youngest leaves with very fine pale hairs. Leaves with petioles 8-10(-15) mm long; blades elliptic-ovate, 7-10(-15) × 3-5(-6.5) cm, 2 to 3 times as long as wide, base acute or somewhat rounded and margin there somewhat cuneately prolonged, apex prominently acuminate, midvein impressed above. Racemes solitary or (more commonly) 2 or 3 superposed, 1-2 cm long, bearing up to 6 to 8 flowers; bracts ovate, 1-1.5 mm long, acute, becoming indurate; bracteoles similar, distinct or slightly connate, persistent; pedicels 3-9 mm long; buds 3-5 mm long; calyx lobes in unequal pairs, broadly rounded, concave, the larger (inner) pair 2.5-3 × 3.5-4 mm; stamens 125 to 150; disk 2.5-3 mm wide; style 5-7 mm long. Fruits oblong, obovoid-oblong, or pyriform, 1.2-2.5 × (6-)8-12 mm, narrowed slightly to base, crowned by persistent, erect, incurved calyx lobes, usually with 8 low, narrow, longitudinal ridges.

GENERAL DISTRIBUTION: Lesser Antilles. Apparently the same species in Guatemala, Honduras and Costa Rica.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!.

COMMON NAMES: Guépois bâtard, bois montagne, goyavier bâtard grand bois.

NOTE: Very similar in aspect is *Eugenia aeruginea* DC. (*E. fadyenii* Urban) of Jamaica, but in that species the racemes are usually longer with more numerous flowers, the bracteoles are triangular-lanceolate and deciduous, and the fruit is not ridged.

Eugenia oerstedeana O. Berg, Linnaea **27:** 285. 1856.

Type: Nicaragua, "inter Sapoa et Tortuga," *Oersted s.n.* (holotype, C!).
Syn.: *Eugenia vincentina* Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 621. 1895. (Lectotype: St. Vincent, *H. H & G. W. Smith 1521* (NY!, photo at A!).)

Tree to 10 m tall (20 m according to Urban), to 15 cm in diameter; leaves, pedicels, and flowers nearly glabrous from the first, but young growth bearing small, coppery, partly 2-branched hairs, and petioles and narrow zone along midvein (on upper surface) hispidulous. Leaves with petioles deeply channeled, 4-7 mm long; blades rather thin, ovate to elliptic or broadly lanceolate, 4-9(-15) × 2-4(-6) cm, mostly 2 to 3 times as long as wide, base rounded or acute, apex acuminate, midvein deeply and narrowly impressed above. Flowers solitary or racemose (with 5 or 6 pairs of flowers, racemes 1-2.5 or 4 cm long), or (in *E. vincentina*) the peduncles cymosely 3- to 5-flowered; bracteoles broadly ovate-cordate with prominent glands, to 1.5 mm long and wide, not contiguous, persistent; pedicels 6-10(-25) mm long, or terminal flowers sessile; buds 4-4.5 mm long; calyx lobes broadly rounded, to 1.5-2 mm long, 2-2.5 mm wide, thin, gland-dotted; stamens 60 to 75; disk 1.5-2.5 mm wide; style 5 mm long. Fruits globose, 8-10 mm in diameter, tipped by pale, membranous, calyx lobes, glandular-roughened.

GENERAL DISTRIBUTION: Central America, Belize, lowlands of Mexico north to Nayarit and northern Veracruz.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Vincent!.

NOTE: *Eugenia oerstedeana* is a member of a primarily South American complex for which the oldest name is *Eugenia florida* DC. *E. florida* ranges from eastern Brazil and Bolivia to the Guianas, Venezuela, northern Colombia and Panama. In *E. florida* most of the flowers are in racemes, on pedicels 3-4 mm long or less; otherwise it is virtually indistinguishable from *E. oerstedeana. E. vincentina* is indistinguishable from *E. oerstedeana* except that the inflorescences tend to be 3-flowered with the terminal flowers sessile. Similar forms are known from Mexico.

Eugenia procera (Sw.) Poiret *in* Lam., Encycl. Suppl. **3:** 129. 1813.

Basionym: *Myrtus procera* Sw., Prodr. 77. 1788.
Type: Hispaniola, *Swartz s.n.* (probable holotype at BM!; presumed isotypes at B-W #9552! (IDC 7440. 659: I. 2, photo!), and M!).

Shrub or small tree to 6-7 m tall; branchlets, petioles, and midveins of leaves more or less densely hispidulous with stiff, erect hairs to 0.5 mm long, peduncles and flowers glabrous or essentially so. Leaves with petioles 1.5-3.5 mm long, to 1 mm thick; blades elliptic-ovate, 1.5-4(-6) × 1-2(-3) cm, often ca. twice as long as wide, base acute to rounded, apex bluntly acuminate, midvein flat or slightly convex above. Racemes mostly 1-2 mm long, bearing 1 to 3(or 4) pairs of flowers always apparently fasciculate in axils; bracts castaneous, usually nearly covering the axis, persistent; bracteoles ovate, 0.6-1 mm long, scarious, persistent. Flowers on slender pedicels 5-12 mm long; buds 2.5-3 mm long; calyx lobes broadly rounded, the larger ones 1-1.3 mm wide, membranous, ciliate; stamens 25 to 30; disk 1 mm wide; style 2-4 mm long. Fruits globose or ellipsoid, 5-7 mm long, ca. 5 mm in diameter, black.

GENERAL DISTRIBUTION: Cuba, Hispaniola, Puerto Rico, Virgin Islands, northern Venezuela, Colombia.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua, Saba!, St. Eustatius, Guadeloupe!, Martinique, Barbados.

Eugenia pseudopsidium Jacq., Enum. Syst. Pl. 23. 1760; Select. Stirp. Amer. Hist. 152. *t. 93.* 1763.

Type: Martinique, *Jacquin s.n.*, specimen unknown; *t. 93*! may stand as the type.
Syn.: *Eugenia pseudopsidium* Jacq. var. *genuina* Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 647. 1895.
Eugenia megalocarpa Urban, Symb. Antill. **5:** 444. 1908. (Type: Guadeloupe, *Duss 4160* (holotype, B, presumably destroyed; isotypes, GH!, NY!).)

Shrub or tree to 15-20 m tall, trunk to 30 cm in diameter, nearly glabrous at maturity; vegetative buds and youngest shoots strigose with pale or reddish hairs. Leaves with petioles 3-6 mm long; blades ovate or elliptic-ovate, (3-)5-10(-16) × (2-)3-6(-9) cm, mostly ca. 1.7 to 2.5 times as long as wide, base rounded or acutely angled and often decurrent, apex prominently acuminate, midvein impressed above. Flowers usually in axils of new leaves, 1 to 3 per axil and seeming to arise together (actually from a very short axillary branch); bracts very small and indurate, pubescent; bracteoles distinct on two sides of pedicel, triangular, 0.7-1.5 mm long, acute, strigose, persistent; pedicels slender, (0.7-)1.5-2(-3) cm long; buds 4-5 mm long; calyx lobes in unequal pairs, broadly oblong to broadly rounded, the larger ones (2.5-)3-3.5(-4) mm long, thin and membranous or papery, reflexed at anthesis, erect and tips incurved in fruit, cucullate or concavo-convex; stamens 100 or more; disk (2-)3-3.5(-4) mm wide, often 4-sided, coppery-pubescent on staminal ring; style 6-7 mm long. Fruits globose, 1.3-2 cm in diameter, with thin flesh over one large seed, red or orange red, juicy.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, Virgin Islands. The same or a very similar plant is in northeastern Venezuela, the Guianas, and eastern Brazil (Amapá).

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

COMMON NAMES: Bois plié, goyavier-montagne, goyavier bâtard.

NOTES: Jacquin's plate, representing a plant from Martinique, shows a leafy branch with long-peduncled fruits in the axils of the leaves. According to his description the peduncles were ''over an inch long,'' and the fruits ''hardly a half-inch'' in diameter. In some fruiting specimens from Montserrat (*Howard 15144*, *17507*, *Proctor 18926*, *Shafer 519*), the mature fruits are 2.5-3 cm in diameter; they are said to be ''orange, turning black-purple.'' Flowering specimens from nearby localities in Montserrat (*Howard 15143*, *15174*) are not distinguishable from other specimens of *Eugenia pseudopsidium.*

Eugenia rhombea Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 644. 1895.

Type: Several syntype collections cited, from Florida south to Guadeloupe.
Syn.: *Eugenia foetida* Pers. var. *rhombea* O. Berg, Linnaea **27:** 212. 1856, nom. illegit.

Shrub or treelike, to 3 m tall, nearly glabrous. Leaves with petioles 3-7 mm long; blades ovate, 3-6 × 1.5-3.5 cm, 1.5 to 2 times as long as wide, base rounded or less often acute, narrowed from middle or below to narrow but rounded and obtusely acuminate apex, margin thick cartilaginous, midvein impressed above or nearly flat, rigidly coriaceous. Racemes very short, to 1-2 mm long with 2 to 4(to 6) flowers apparently fascicled in the axils; bracteoles distinct, broadly or narrowly ovate, 0.5-0.8 mm long, persistent or subpersistent. Flowers on slender pedicels, 6-15 mm long; buds 3-4 mm long, unopened petals hardly longer than calyx; hypanthium after flowering soon oblate, separated from conspicuous calyx by narrow neck; calyx lobes in unequal pairs, rounded, to 3.5 mm wide and almost as long; stamens ca. 80; disk 2-3.5 mm wide; style 4-5.5 mm long. Fruits globose or oblate, 5-6 × 7-8 mm, black, somewhat glandular-roughened.

GENERAL DISTRIBUTION: Honduras, Guatemala, Chiapas, Yucatan, Veracruz, southern Florida, Bahamas, Cuba, Jamaica, Hispaniola, Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts, Barbuda!, Antigua, Saba!, St. Eustatius!, Guadeloupe, Martinique!.

COMMON NAME: Redwood.

Eugenia trinervia M. Vahl, Eclog. Amer. **2:** 36. 1798; Icon. Ill. Pl. Amer. **2:** *t. 19.* 1799.

Type: "Cayenne," *von Rohr 159* (holotype, C, n.v. (IDC 2201. 27: II. 6, photo!); isotype, BM!).

Syn.: *Myrtus vahlii* Sprengel, Syst. Veg. **2:** 484. 1825, illegit. nom. nov. for *Eugenia trinervia* M. Vahl.

Eugenia? vahlii DC., Prodr. **3:** 279. 1828, nom. illegit.

Eugenia brachystachys O. Berg, Linnaea **27:** 301. 1856. (Type: Guadeloupe, *Duchassaing s.n.* (holotype, B, presumably destroyed).)

Eugenia perplexans R. O. Williams, Fl. Trinidad **1:** 350. 1934. (Type: Trinidad, *Williams 12200* (holotype, TRIN; isotype, K!).)

Probably a tree; young herbage and inflorescences rather thinly covered by straight, white, closely appressed hairs to more than 0.5 mm long. Leaves with petioles 7-12 mm long; blades thin, elliptic to lance-ovate or ovate, 10-20 × 5.5-12 cm, 1.7 to 2.7 times as long as wide, base rounded or even subcordate to obtusely angled, apex gradually or abruptly sharply acuminate, prominently veined with strong marginal vein 5-15 mm from margin forming a gridiron pattern with laterals, midvein deeply and narrowly impressed above. Racemes 1-3.5 cm long, relatively slender, bearing 1 to 4 pairs of flowers; bracteoles triangular-ovate, 1-1.3 mm long, contiguous, scarious, persistent. Flowers on pedicels 5-10(-15) mm long; buds 5-6 mm long; hypanthium densely white-strigose; calyx lobes markedly unequal, broadly rounded, the larger pair 3-3.5 mm long and wide, thin, nearly glabrous outside; stamens ca. 100; disk 2.5-3 mm wide; style 7 mm long. Fruits elongate, probably 1.5-2 cm long, 1 cm thick.

GENERAL DISTRIBUTION: Southern Lesser Antilles, Trinidad. The type supposedly came from Cayenne, but more probably from Guadeloupe or Martinique as the species is otherwise unknown from the South American mainland.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Vincent!.

COMMON NAMES: Grand merisier, gouavier des montagnes.

Eugenia trinitatis DC., Prodr. **3:** 280. 1828.

Type: Trinidad, *Sieber 94* (holotype, G-DC, n.v. (IDC 2562. 542: I. 5, photo!); identity attested by Urban.

Syn.: *Eugenia grenadensis* Urban, Repert. Spec. Nov. Regni Veg. **14:** 337. 1916. (Type: Grenada, *Broadway 1884* (isotype, A!).)

Tree or shrub 3-5 m tall, essentially glabrous at fruiting time; young branchlets minutely hispidulous and with a few longer, ascending hairs. Leaves with petioles 3-6 mm long; blades ovate, 2.5-7.5 × 1.5-3 cm, 1.5 to 2 times as long as wide, base acute to rounded, apex obtusely acuminate or tip prolonged and narrow, inconspicuously veined with midvein shallowly impressed as a broad groove above, coriaceous, lustrous and impressed-punctate above, paler beneath. Racemes slender, 1-3(-10) cm long, sometimes two superposed, axis sparingly hispidulous; flowers 6 to 12 (or according to Urban up to 20 to 40); bracts triangular or deltoid, subpersistent; bracteoles ovate or broader, 1 mm wide and almost as long, apex obtuse or rounded, contiguous; flowers not seen, on pedicels 2-4 mm long; buds (according to Urban) 2 mm long; calyx lobes in fruit slightly unequal, broadly rounded, the larger pair 1-1.3 mm long, to 2 mm wide; disk 2-2.5 mm wide. Fruits subglobose or depressed-globose, 7-8 mm in diameter.

GENERAL DISTRIBUTION: Southern Lesser Antilles and Trinidad (but see note below).

DISTRIBUTION IN LESSER ANTILLES: Martinique!, Grenada!.

COMMON NAME: Bois petite feuille.

NOTES: Unknown from Trinidad except for the type specimens, collected about 1821 or before. According to R. O. Williams (Fl. Trinidad **1:** 352. 1934) the type specimens were perhaps collected in Guadeloupe, but the species is not otherwise known from that island. Plant collectors for Sieber worked in Martinique from 1819 to 1821, and in Trinidad in 1822, and perhaps some specimens from the two islands were intermixed.

Eugenia uniflora L., Sp. Pl. **1:** 470. 1753.

Lectotype: From a plant cultivated in Italian gardens; Micheli, Nov. Pl. Gen. 226, *t. 108.* 1729.

Shrub or small tree sometimes 9 m tall, but flowering and fruiting when 1-2 m tall only, essentially glabrous at maturity. Leaves with petioles 3-4 mm long; blades ovate, 2.5-7 × 1.5-4.5 cm, 1.5 to 2 times as long as wide, base rounded, apex bluntly acuminate, midvein concave or sulcate above. Racemes very short, axillary, bearing 1 to 3 crowded pairs of flowers subtended by thin, scarious or colored bracts 3-5 mm long, the whole resembling an umbel-like cluster surrounded by an involucre; axis of raceme sometimes produced into a new leafy shoot beyond flowers; bracteoles linear or filiform, 1-2 mm long, deciduous before anthesis. Flowers on filiform pedicels (5-)10-18 mm long; buds ca. 5 mm long; calyx lobes almost leafy, oblong-elliptic, nearly flat, 2.5-4 × 1.8-2 mm, soon strongly reflexed; petals 7-8 mm long; stamens ca. 60; disk 2 mm wide; style 4.5-5 mm long. Fruits depressed-globose, 2-3 cm in diameter with 8 longitudinal ridges, tomato-red, juicy.

GENERAL DISTRIBUTION: Native in eastern Brazil, now cultivated and escaped in most tropical and subtropical regions.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica, Martinique!, St. Vincent, Grenada, Barbados.

COMMON NAMES: Cerise à côtes, cerise de Cayenne, Surinam cherry.

NOTE: The fruit of this species, the so-called Surinam cherry, is, in the opinion of many, one of the best of tropical fruits.

GOMIDESIA O. Berg

Gomidesia O. Berg, Linnaea **27:** 6. 1855.

Trees or shrubs, often tomentose or villous. Inflorescences usually axillary, myrcioid panicles; bracts mostly deciduous. Flowers with hypanthium slightly to not at all prolonged beyond ovary; calyx open in bud, of 5 distinct, mostly broad, obtuse lobes, persistent; petals 5, free, white; stamens numerous, filaments filiform, anthers 4-locular with two pairs of pollen sacs at different levels, the upper seeming to open extrorsely, the lower introrsely; ovary 2- or 3-locular, ovules 2 per locule, style filiform, stigma minute. Fruits ovoid to subglobose, fleshy to nearly dry, crowned by persistent calyx lobes; seeds and embryo as in *Myrcia.*

LECTOTYPE: *Gomidesia spectabilis* (DC.) O. Berg (*Myrcia spectabilis* DC.); vide McVaugh, Taxon **5:** 141. 1956.

A neotropical genus of perhaps 45 species or more, best developed in Brazil, with one species extending northward as far as Cuba. For further information see C. D. Legrand, Comun. Bot. Mus. Hist. Nat. Montevideo **3**(37): 1-30. 1959.

Gomidesia lindeniana O. Berg, Linnaea **29:** 208. 1858. FIGURE 175.

Type: Cuba, *Linden 2123* (holotype, LE; isotypes G!, MICH!).
Syn.: *Myrcia fenzliana* O. Berg *in* C. Martius, Fl. Bras. **14**(1): 196. 14 : 1857, not *Gomidesia fenzliana* O. Berg *in* C. Martius, Fl. Bras. **14**(1): 20. 1857. (Type: Brazil, Minas Geraes, *Sellow s.n.* (n.v.; identity attested by Urban).)
Myrcia sintenisii Kiaerskov, Bot. Tidsskr. **17:** 257. 1890, illegit. nom. nov. for *Gomidesia lindeniana* O. Berg in the genus *Myrcia* as *Myrcia fenzliana* is cited in synonymy.

Tall shrub or tree to 10 m tall, densely velvety-pilose with yellow-brown hairs. Leaves with stout petioles 1 cm long or less, pubescent; blades elliptic, 7-15 cm long, base and apex acuminate, midvein impressed above, characteristically convex above, concave beneath, thinly pubescent. Panicles coarse and many-flowered, 5-15 cm long, on peduncles mostly 2-3 cm long; bracts and bracteoles deltoid-ovate, to 5 mm long, acute, silky, falling before anthesis. Flowers with calyx lobes broadly triangular, hardly more than 1 mm long, 2 mm wide or more; petals obovate, 5 mm long; staminal disk and summit of ovary densely short-pilose; stamens ca. 150 to 175, anthers 0.6-0.7 mm long, the upper and lower pollen sacs overlapping ca. half their lengths; style 4.5-6 mm long. Fruits ovoid or subglobose, 6-10 mm long, black, pilose.

GENERAL DISTRIBUTION: Cuba, Hispaniola, Jamaica, Puerto Rico, southeastern Brazil (Minas Geraes).

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Montserrat, Guadeloupe!, Dominica!.

COMMON NAME: Grand merisier.

MARLIEREA Cambess.

Marlierea Cambess. *in* A. St. Hil., Fl. Bras. Merid. **2:** 269 (ed. folio), 373 (ed. quarto). 1833.

Syn.: *Krugia* Urban, Ber. Deutsch. Bot. Ges. **11:** 375. 1893. (Type: *Krugia elliptica* (Griseb.) Urban (*Marlierea elliptica* Griseb.).)

Shrubs or trees, glabrous or pubescent, the hairs sometimes 2-branched; branchlets sometimes with 2 angles or wings terminating distally at nodes in midlines of leaf bases. Inflorescences axillary or terminal, myrcioid panicles with main axis of axillary panicles usually aborting above lowest node; bracts sometimes persistent; bracteoles deciduous before anthesis. Flowers with hypanthium prolonged beyond ovary; calyx closed in bud, or with 5(or 4) small free lobes, splitting irregularly at anthesis with hypanthium into long-persistent or subdeciduous segments, or one large segment calyptralike; petals 5(or 4), small and inconspicuous, sometimes wanting or united and falling with one calyptralike calyx segment; stamens numerous, filaments filiform, anthers longitudinally dehiscent; ovary 2-locular, ovules 2 per locule, style filiform, stigma minute. Fruits commonly globose or even oblate, fleshy or nearly dry, often bearing remnants of calyx and hypanthium; seeds 1(to 3), large, nearly filling fruit, ovoid to globose, with thin, lustrous, brittle, cartilaginous testa; embryo myrcioid.

LECTOTYPE: *Marlierea suaveolens* Cambess.; vide McVaugh, Taxon **5:** 142. 1956.

A neotropical genus of ca. 50 species, prinicipally of South America.

Key to the Species

Plants essentially glabrous; branchlets bicarinate; bracts deciduous from the inflorescence at a very early stage . . . . *M. guildingiana*

Plants copiously brown- or rufous-pubescent at least in the inflorescence; branchlets not angled; bracts broad, persistent in flower and fruit . . . . *M. ferruginea*

Marlierea ferruginea (Poiret) McVaugh, Mem. New York Bot. Gard. **10:** 83. 1958.

Basionym: *Eugenia ferruginea* Poiret *in* Lam., Encycl. Suppl. **3:** 124. 1813.
Type: "Cayenne," ex herb. Poiret (holotype, FI!).
Syn.: *Marlierea acuminata* O. Berg, Linnaea **27:** 13. 1855. (Lectotype: Guyana, *Rob. Schomburgk 613* (W).)
Marlierea elliptica Griseb., Fl. Brit. W. Indian Is. 233. 1860. (Type: Trinidad, *Crueger s.n.* (holotype, K!).)
Eugeniopsis richardiana O. Berg, Linnaea **30:** 665. 1861. (Type: Cayenne, *Richard 71* (holotype, P!).)
Krugia elliptica (Griseb.) Urban, Ber. Deutsch. Bot. Ges. **11:** 376. 1893.
Krugia ferruginea (Poiret) Urban, Bot. Jahrb. Syst. **19:** 604. 1895.

Large shrub or tree to 10 m tall, copiously pubescent or subtomentose (at least the inflorescences) with soft rufous or yellow-brown hairs. Leaves with stout petioles 4-8 mm long, often corky-rimose; blades elliptic-ovate, 5-15 × 2-6 cm, base rounded to acute, apex prominently and often narrowly acuminate, midvein impressed above, coriaceous. Panicles 4-7 cm long, many-flowered, often with several-fascicled branches; bracts broadly deltoid-ovate and somewhat enclosing bases of subtended branchlets, to 3-4 × 2.5-3.5 mm, persistent even in fruit. Flowers with buds obovoid, 3 mm long; hypanthium tube and remnants of outer calyx lobes persistent; calyx open in bud, 5-lobed, the 2 interior lobes forming a calyptra; petals ca. 3, minute, adherent to calyptra and falling with it; stamens ca. 100; style 5-6 mm long. Fruits subglobose, to 1 cm in diameter, reddish then black.

General distribution: Trinidad and Tobago, to the Guianas and northeastern Venezuela.

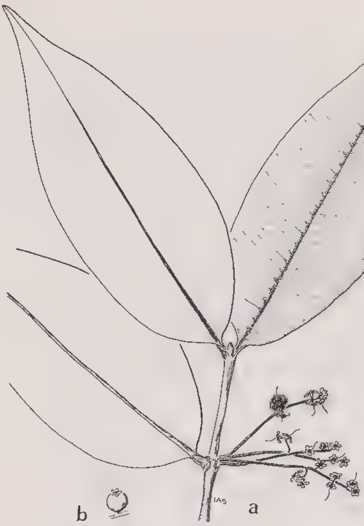
Distribution in Lesser Antilles: St. Vincent!, Grenada!.

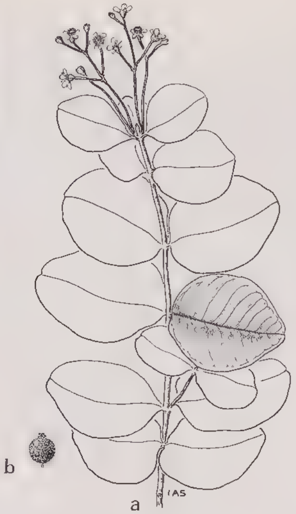
Common name: Wild plum rose.

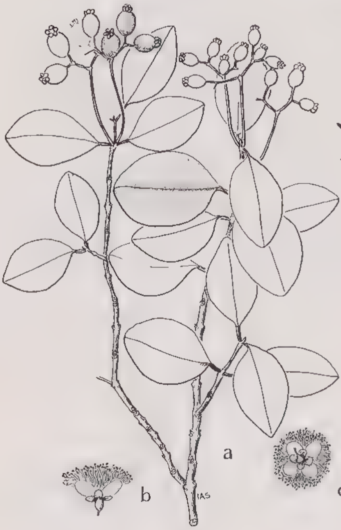
Marlierea guildingiana (Griseb.) Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 591. 1895. Figure 176.

Basionym: *Psidium guildingianum* Griseb., Fl. Brit. W. Indian Is. 242. 1860.
Type: St. Vincent, *Guilding s.n.* (holotype, K!).
Syn.: *Plinia guildingiana* (Griseb.) Urban, Ark. Bot. **21A**(5): 23. 1927.

Tree to 10 m tall, glabrous except for young inflorescences thinly rufous-pubescent; branchlets bicarinate. Leaves with thick petioles 4-7 mm long, in age corky-rimose; blades broadly ovate or elliptic-ovate, 6-15(-22) × 3-7 cm, base rounded, apex acuminate, midvein impressed above, coriaceous. Panicles 2-6(-8) cm long, commonly with several- (2- to 8-)fascicled branches,







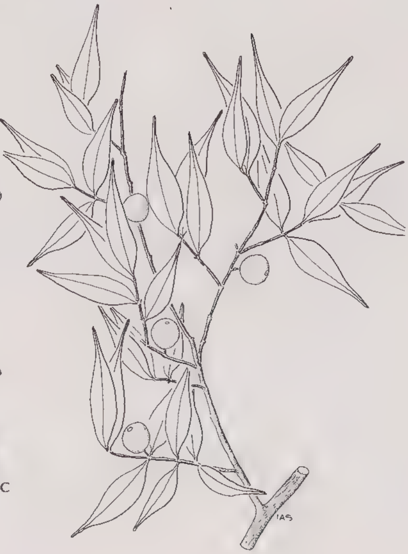


FIGURE 176 (upper left). *Marlierea guildingiana*: a, flowering branch, × 0.35; b, fruit, × 0.35. FIGURE 177 (upper right). *Myrcia platyclada*: a, flowering branch, × 0.35; b, fruit, × 0.35. FIGURE 178 (lower left). *Myrcianthes fragrans*: a, fruiting branch, × 0.35; b, flower from side, × 0.35; c, flower from base, × 0.35. FIGURE 179 (lower right). *Myrciaria floribunda*, × 0.35.

each branch 10- to 20-flowered, maturing 5 to 10 fruits; bracts and bracteoles falling before buds develop. Flowers with buds obovoid, 3 mm long, slightly 4-ridged at apex by short, tightly appressed calyx lobes; hypanthium persisting after flowering as a deep cup 1-1.5 mm high or more; petals 4, 2 mm long; stamens ca. 50; style 4-5 mm long. Fruits globose or oblate, to 1 cm in diameter, with persistent hypanthium rim and short calyx lobes, bright red.

General distribution: Trinidad, northeastern Venezuela.

Distribution in Lesser Antilles: St. Lucia!, St. Vincent!, Grenada!.

MYRCIA DC. ex Guillemin

Myrcia DC. ex Guillemin, Dict. Class. Hist. Nat. preprint 5. 1826, and **11:** 401, 406. 1827.

Trees or shrubs, glabrous or pubescent, a few species with some dibrachiate hairs. Inflorescences usually axillary, myrcioid panicles with central axis prolonged; bracts and bracteoles mostly small and deciduous, in a few species foliaceous and persistent. Flowers with hypanthium not at all or variously prolonged beyond ovary, not splitting longitudinally; calyx lobes 5 or 4 (in different species), sometimes deciduous from hypanthium; petals 5 or 4, free, spreading, white, falling individually; stamens numerous, filaments filiform, anthers laterally and longitudinally dehiscent; ovary 2-, or in a few species, 3-locular, ovules 2 per locule, style filiform, stigma minute. Fruits ovoid to globose or oblate, fleshy or nearly dry, crowned by persistent calyx or lobes individually deciduous; seeds 1(to 3), large, nearly filling fruit, ovoid to globose; testa thin, lustrous, brittle, cartilaginous; embryo myrcioid, with cotyledons large, thin, foliaceous in texture, crumpled and folded about elongate hypocotyl.

Lectotype: *Myrcia bracteolaris* (Poiret) DC. (*Myrtus bracteolaris* Poiret) = *Myrcia fallax* (Rich.) DC.; vide McVaugh, Taxon **5:** 143. 1956.

A genus of 300 or more species, all American.

Key to the Species

1. Midvein (in dried leaves) convex on upper surface; ovary 3-locular; hypanthium (''base of the calyx'') glabrous or essentially so from the first; floral disk glabrous; calyx lobes closely and finely pubescent on inner surface....... *M. citrifolia*
1. Midvein impressed or furrowed on upper surface; ovary 2-locular; hypanthium, floral disk, and calyx lobes glabrous to pubescent.
   2. Floral disk (including staminal ring and summit of ovary) glabrous; hypanthium glabrous or thinly pubescent with appressed and partly 2-branched hairs; plants never conspicuously pubescent, usually appearing glabrous to the unaided eye.

3. Petioles evidently thickened, (1.5-)2-3 mm thick, outer layers soon becoming pale and corky, cracking and peeling off; lateral veins more or less impressed above in dried leaves; bracts of inflorescences ovate, indurate, persisting at least through the flowering period; floral disk 3-3.5 mm wide .... *M. antillana*

3. Petioles usually less than 1.5 mm thick, without pale, exfoliating outer layers; lateral veins not impressed; bracts of inflorescences falling before buds open; floral disk 1.5-2 mm wide.

4. Leaves elliptic-ovate or elliptic-lanceolate, usually more or less rounded at base and prolonged at apex, darkening to dull brown or coppery-brown in drying, 5-15 cm long, 2 to 3.5 times as long as wide; inflorescences slender and loosely flowered, peduncles and larger branches terete, or below nodes compressed and to 1-1.3 mm wide....... *M. leptoclada*

4. Leaves obovate or obovate-elliptic, usually cuneate or acute at base and obtuse or rounded at apex, green in drying or upper surface blackening, 3-6 cm long mostly 1.5-2 times as long as wide; inflorescences relatively stout, flowers corymbosely clustered near tips, peduncles and large branches 1.5-2.5 mm wide often noticeably flattened.. *M. platyclada*

2. Floral disk densely hairy; hypanthium (at least in flower) densely beset with closely crowded hairs (some hairs commonly persisting on the fruit); plants evidently pubescent.

5. Leaves minutely pebbled (bullate) beneath, the fine veinlets depressed below surface; inflorescences densely scurfy-pubescent, of sharp, erect hairs intermingled with minute, pale, inflated hairs; calyx lobes pubescent on both surfaces.. *M. deflexa*

5. Leaves smooth or with an elevated reticulum of fine veins beneath; inflorescences not scurfy-pubescent; hairs of hypanthium appressed.

6. Branchlets and inflorescences (including the fruits) densely velvety-pubescent with crowded, upstanding, yellowish-brown hairs 0.5 mm long or less; leaves obtuse or short-acuminate at apex, 1.5(to 2) times as long as wide; calyx lobes pubescent on inner surface; disk in fruit (flowers unknown) 3-4 mm wide; Dominica, St. Lucia....... *M. ramageana*

6. Branchlets and inflorescences thinly strigose to silky-pilose, fruits glabrous or sparingly strigose; leaves prominently and often narrowly acuminate, mostly 2 to 3 times as long as wide; calyx lobes glabrous or nearly so on inner surface; disk 2-2.5 mm wide; wide-ranging in the Antilles.

7. Midvein on upper surface marked by a definite narrow line of upright, bristly hairs; petioles 1-3(-4) mm long; leaves mostly rounded to subcordate at base, margins puckered into auricle-like folds at summit of petiole; larger branchlets of panicles mostly 1-1.5 mm wide; fruits globose or oval, 1.5 times as long as wide or shorter.. *M. splendens*

7. Midvein glabrous on upper surface, or sides of furrow lined with pale, appressed hairs; petioles 4-7 mm long; leaves mostly acute to cuneate at base, margins not puckered at summit of petiole; larger branchlets of panicles to 1.5-2.2 mm wide; fruits oblong-ellipsoid, often nearly twice as long as wide........................... *M. fallax*

Myrcia antillana McVaugh, J. Arnold Arbor. **54:** 311. 1973.

Type: St. Lucia, *Proctor 17973* (holotype, MICH!; isotype, A!).
Syn.: *Myrcia edulis* sensu Urban, Bot. Jahrb. Syst. **19:** 581. 1895, not *Aulomyrcia edulis* O. Berg (1861).
Myrcia edulis sensu Urban var. *dominicana* Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 582. 1895. (Lectotype: Dominica, *Ramage s.n.* (K!); designated by McVaugh, loc. cit.)

Tree to 10-12 m tall, with trunk 20-30 cm in diameter; nearly glabrous at maturity, young branchlets and inflorescences (except flowers) rather densely strigose with ascending or appressed, rather coarse, copper-colored or pale reddish, partly 2-branched hairs. Leaves with petioles 5-7 × 2-3 mm, outer layers soon becoming corky, cracking and peeling off; blades broadly elliptic or elliptic-obovate, 5-12(-20) × 3-6(-11) cm, 1.5 to 2 times as long as wide, base usually obtusely angled to rounded, more rarely subcordate or subacute, apex obtusely short-acuminate or merely obtuse, midvein impressed above, lateral veins more or less impressed above in dried leaves, rigidly coriaceous, usually drying dark reddish-brown above and copper-colored beneath. Panicles 6-15 cm long, openly branched, 2 to 3 times compound, with numerous flowers clustered near apices, mostly nearly sessile; bracts ovate, indurate, persistent through flowering period. Flowers with buds broadly pyriform, 3-4 mm long, essentially glabrous except for scattered hairs on narrow base of hypanthium; calyx lobes 5, unequal, rounded, to 1 × 2.5 mm, appressed in bud, spreading in flower and partly or wholly separating from hypanthium in age, glabrous on inner surface except near tips; stamens 75 to 100; disk saucer-shaped, ca. 3-3.5 mm wide, glabrous; ovary 2-locular, style ca. 5 mm long. Fruits depressed-globose, 1.2-2 cm in diameter.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, St. Lucia!, St. Vincent!.

COMMON NAMES: Bwa fé, bois faire.

NOTES: The specimens from Dominica were separated by Urban as var. *dominicana* because the leaves are relatively longer and longer-pointed. In *Howard 18010*, from St. Vincent, the largest leaves are only about 5 cm long, but otherwise the specimens appear not to differ appreciably from others of this species.

Myrcia citrifolia (Aublet) Urban, Repert. Spec. Nov. Regni Veg. **16:** 150. 1920.

Shrub or small tree to 6-8 m tall, with trunk to 8-10 cm in diameter; pubescent when young with branchlets, petioles, youngest leaves, and at least base of inflorescences bearing ascending or appressed, stiff, reddish or pale hairs; unequally 2-branched, flat hairs 0.1-0.3 mm long usually present in inflorescences and along midvein of lower leaf surface. Leaves with petioles 1.5-4 mm long; blades very variable in size and shape, broadly elliptic or rarely ovate to obovate or orbiculate, (1.5-)3-6(-8.5) × (1-)1.5-4(-6) cm, 1 to 1.5(to

2) times as long as wide, base rounded to cuneate, apex rounded or obtuse (occasionally retuse or obscurely acuminate), midvein pale, convex on upper surface in dried leaves, coriaceous. Panicles produced from terminal 1 or 2 nodes of flowering branchlets, 3-6(-10) cm long, usually twice compound, flowers 15 or fewer, those at apices tending to be arranged in 3's with 2 lateral ones pediceled. Flowers with buds 3-5 mm long; calyx lobes 5, subequal, very low and rounded, at most 1.5 × 1.5-2.5 mm, closely pale-puberulent within; stamens more than 100; disk saucer-shaped, 3 mm wide, glabrous; ovary 3-locular, style 6-7 mm long. Fruits globose or depressed or with a constriction below persistent calyx, ca. 1 cm in diameter, black.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, Virgin Islands, the Guianas, eastern Venezuela; reported from southeastern Brazil.

DISTRIBUTION IN LESSER ANTILLES: Throughout, where represented by at least two regional varieties as follows:

Myrcia citrifolia (Aublet) Urban var. **citrifolia.**

Basionym: *Myrtus citrifolia* Aublet, Hist. Pl. Guiane index p. 20. 1775.

Type: Martinique, *Plumier s.n.*; specimen unknown, the plate cited by Aublet, viz. Plum., Pl. Amer. *t. 208, fig. 2.* 1759, is taken as the type.

Syn.: *Eugenia paniculata* Jacq., Collectanea **2:** 108, *t. 5, fig. 1.* 1789. (Type: Martinique, *Aquart s.n.* (W!).)

Myrtus coriacea M. Vahl, Symb. Bot. **2:** 59. 1791, nom. nov. for *Myrtus acris* var. b Sw., Prodr. 79. 1788, both nom. illegit. for *Myrcia citrifolia* Aublet (same type).

Myrtus cotinifolia J. Gmelin, Syst. Nat. **2:** 792. 1791, nom. illegit. for *Myrcia citrifolia* Aublet (same type).

Eugenia acetosans Poiret *in* Lam., Encycl. Suppl. **3:** 125. 1813. (Type: French Guiana, *Richard s.n.* ex herb. Poiret (holotype, P!).)

Myrcia coriacea (M. Vahl) DC., Prodr. **3:** 243. 1828.

Aulomyrcia coriacea (M. Vahl) O. Berg, Linnaea **27:** 70. 1855.

Aulomyrcia jacquiniana O. Berg, Linnaea **27:** 69. 1855, nom. illegit. for *Eugenia paniculata* Jacq.

Myrcia coriacea (M. Vahl) DC. var. *jacquiniana* (O. Berg) Griseb., Fl. Brit. W. Indian Is. 234. 1860.

Myrcia coriacea (M. Vahl) DC. var. *swartziana* Griseb., Fl. Brit. W. Indian Is. 234. 1860, nom. illegit. based on "*Myrtus coriacea* Sw.," Fl. Ind. Occid. **2:** 912. 1798 = *Myrtus coriacea* M. Vahl.

Aulomyrcia acetosans (Poiret) O. Berg, Linnaea **30:** 662. 1861.

Myrcia paniculata (Jacq.) Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 577. 1895.

Aulomyrcia citrifolia (Aublet) Amshoff, Bull. Torrey Bot. Club **75:** 531. 1948.

Leaves commonly elliptic to suborbiculate, base often rounded, rigidly coriaceous, evidently glossy above, pubescence scanty; 2-branched hairs on panicles and foliar veins infrequent or none. Panicles very openly branched, terminal groups of flowers usually regularly forked; peduncles often 1.5-2.5 cm long, shorter than terminal-branched part of panicle; lateral pedicels commonly 7-12 mm long; mostly at low elevations.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Barbados!.

COMMON NAMES: Merisier, bois ti feuilles, "kurupun," bois de fer.

Myrcia citrifolia (Aublet) Urban var. **imrayana** (Griseb.) Stehlé & Quentin, Fl. Guadeloupe **2**(3): 57. 1949.

Basionym: *Myrcia coriacea* (M. Vahl) DC. var. *imrayana* Griseb., Fl. Brit. W. Indian Is. 234. 1860. (Type: Dominica, *Imray s.n.* (holotype, K, n.v.; isotype, GH!).)

Leaves prevailingly elliptic-obovate, base acute to cuneate, moderately coriaceous, dull or scarcely glossy above, pubescence often abundant and partly persistent; 2-branched hairs usually present at least along midveins, even of mature leaves. Panicles more crowded with terminal groups of flowers often irregularly disposed; peduncles 2-6 cm long, usually longer than terminal-branched part of panicle; lateral pedicels 1-6 mm long, or flowers even sessile.

GENERAL DISTRIBUTION: Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, St. Vincent!, Grenada!.

COMMON NAMES: Birch, red birch, merisier, merise, bois petite feuille, bois de Ste. Lucie, guava berry.

NOTE: Superficially these plants are very similar to South American plants of *Myrcia guianensis* (Aublet) DC., a widespread lowland species as yet unknown from the West Indies.

Myrcia deflexa (Poiret) DC., Prodr. **3**: 244. 1828.

Basionym: *Eugenia deflexa* Poiret *in* Lam., Encycl. Suppl. **3**: 124. 1813.
Lectotype: Puerto Rico, *Riedlé s.n.* in herb. Desf. (FI!).
Syn.: *Myrcia duchassaingiana* O. Berg, Linnaea **27**: 88. 1855. (Type: Guadeloupe, *Duchassaing s.n.* (holotype, B, presumably destroyed; isotypes K, P, photos at A!).)
Myrcia ferruginea (Poiret) DC. var. *domingensis* O. Berg, Linnaea **27**: 90. 1855. (Type: Hispaniola, *Rob. Schomburgk 61* (holotype, B, presumably destroyed; identity attested by Urban).)
Myrcia ferruginea (Poiret) DC. var. *martinicensis* O. Berg, Linnaea **27**: 90. 1855, illegit. epithet for typical variety.
Myrcia humboldtiana DC. var. *caribaea* O. Berg, Linnaea **27**: 121. 1855, nom. illegit. for *Myrcia deflexa* (Poiret) DC.
Myrcia ferruginea sensu Griseb., Fl. Brit. W. Indian Is. 235. 1860, non DC. (1828).
Myrcia deflexa (Poiret) DC. var. *dussii* Krug & Urban ex Urban Bot. Jahrb. Syst. **19**: 588. 1895. (Type: Martinique, *Duss 658* (n.v.; isotype, K, photo at A!).)

Shrub or small tree to 10 m tall, ochraceous- or rusty-pubescent with erect or matted hairs to 1 mm long, and intermingled with very numerous, short, scurfy, inflated hairs. Leaves with stout petioles 6-10 × 1.5-2.5 mm; blades elliptic to ovate, 7-15(-25) × 3-6(-10) cm, 2 to 3 times as long as wide, base rounded or subcuneate, apex acuminate or even caudate, margin decurrent, midvein impressed above at least near base, minutely bullate beneath with reticulum of small veinlets sunken. Panicles 6-12 cm long and broad, many-flowered, ca. 3 times compound. Flowers with buds obconic, 3-4 mm long; calyx lobes 5, broadly rounded, 2-3 × 2.5-4 mm, hairy on both surfaces; petals 5 mm long; stamens ca. 250; floral disk 2.5-4 mm wide, densely hairy; style 5-7 mm long. Fruits ellipsoid, to ca. 1.5 × 1 cm.

GENERAL DISTRIBUTION: Cuba, Hispaniola, Puerto Rico, Trinidad, Guianas, Amazon and Orinoco lowlands, west to eastern Peru.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Bois créole, goyavier bâtard, goyavier bois, goyavier queu de rat, bwa kwéyòl.

Myrcia fallax (Rich.) DC., Prodr. **3:** 244. 1828.

Basionym: *Eugenia fallax* Rich., Actes Soc Hist. Nat. Paris **1:** 110. 1792.
Type: Cayenne, *Leblond s.n.* (P!).
Syn.: *Myrcia berberis* DC., Prodr. **3:** 254. 1828. (Lectotype: Brazil, *Martius s.n.* (M!).)
Myrcia coumetoides O. Berg, Linnaea **27:** 102. 1855. (Type: "in insulis Caribaeis," collector unknown (holotype, BR!).)
Myrcia reticulata O. Berg, Linnaea **27:** 101. 1855. (Type: Martinique, *Sieber suppl. 47* (holotype, B, presumably destroyed; identity attested by Urban).)
Myrcia divaricata sensu Griseb., Fl. Brit. W. Indian Is. 234, 1860, pro max. part, not (Lam.) DC. (1828).
Myrcia martinicensis Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 586. 1895. (Lectotype: Martinique, *Duss 1251* (NY!, photo at A!).)

Tree to 10-12 m tall, with trunk to 30 cm in diameter; thinly appressed-pubescent with grayish-white hairs to 0.5 mm long, these abundant on hypanthium, closely packed on vegetative buds, often thinly covering petioles and extending up sides of furrow formed by midvein on upper leaf surface. Leaves with petioles 4-7 mm long; blades elliptic to elliptic-ovate or -lanceolate, (4-)6-15 × (1.5-)3-6 cm, mostly 2 to 3 times as long as wide, base acute to cuneate, sometimes rounded, usually flat, apex acuminate (often narrowly so), margin not puckered in auriclelike folds (as in *M. splendens*), finely reticulate-veined above, midvein impressed or furrowed above, drying yellow-green or darkening. Panicles 5-12 cm long, 3 times compound, many-flowered, relatively stout, larger axes somewhat flattened below nodes and often 1.5-2.2 mm wide. Flowers with buds 2.5-3.5 mm long; calyx lobes 5, subequal, broadly rounded, 0.8-1.5 × 1.5-2 mm, glabrous or essentially so on inner face; stamens 75 or more; disk flat or slightly concave, 2-2.5 mm wide, pubescent; ovary 2-locular, style 3.5-4.5 mm long. Fruits oblong-ellipsoid, 10-15 mm long, 6-8 mm in diameter, often nearly twice as long as wide, purplish-black.

GENERAL DISTRIBUTION: Puerto Rico, Trinidad and Tobago, Panama, South America as far south as Peru and eastern Brazil.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Bois grillé, petit goyavier montagne, bois de basse blanc, goyavier bâtard, gin.

NOTES: Superficially *M. fallax* resembles *M. splendens*, which is far more common throughout the West Indies. Forms intermediate in pubescence, fruit shape, or leaf form have been found in the Lesser Antilles, and hybridization between these two species may be suspected.

A form known on the basis of three collections from St. Lucia (Fonds St. Jacques, *Ramage s.n.*, 11 Oct. 1888 (K!); Savane Edmund distr., SE of Piton Troumassee, 1800-2000 ft., *Proctor 17712 21597*, both at A!) has extraordinarily large fruits (2.5-3 cm long and more than 1 cm in diameter), and conceivably may represent a distinct species.

At elevations from 500-1200 m, in forests including "elfin forest," on Guadeloupe!, St. Lucia!, and Martinique, occurs a plant indistinguishable except by having the older leaves with strongly impressed lateral veins and midvein. The blades may be the normal shape, or sometimes ovate and rounded at base. Similar forms of *Myrcia deflexa* are known in similar habitats.

Myrcia martinicensis was described on the basis of a group of fruiting specimens from Martinique (*Duss 191!*, *621!*, *1251!*). All the specimens have short-petioled leaves that are ovate and rounded at base as in some forms of *M. splendens.* However, in characters of fruit and pubescence they are typical of *M. fallax*, of which *M. martinicensis* is apparently no more than a minor variant.

Myrcia leptoclada DC., Prodr. **3:** 244. 1828.

Type: Hispaniola, *Bertero s.n.* (holotype, G-DC!; IDC 2562. 530: II. 5, photo!).

Shrub or small tree to 10 m tall; branchlets and youngest leaves sparingly strigose with appressed, coppery-red or paler, partly 2-branched hairs to more than 0.5 mm long, inflorescences quite glabrous or with a few short hairs on branches. Leaves with petioles 3-5 mm long; blades elliptic-ovate or -lanceolate, (3-)5-15 × 2-5 cm, mostly 2.2 to 3.5 times as long as wide, base rounded and then usually cuneately narrowed, apex prominently but obtusely acuminate or almost caudate, midvein impressed above, lateral veins not so, usually darkening to dull or coppery-brown in drying. Panicles slender, broadly pyramidal, 4-10 cm long, ca. 3 times compound with many small flowers near apices of branchlets; bracts deciduous before flower buds open. Flowers with buds top-shaped, 2-2.5 mm long; hypanthium glabrous; calyx lobes 5, very unequal, the 2 largest (innermost) suborbiculate, 1.5-1.8 mm wide, finely and closely pubescent on inner surface, tending to be deciduous; stamens ca. 75; disk bowl-shaped, 1.5-2 mm wide, glabrous; ovary 2-locular, style 3-4 mm long. Fruits depressed-globose, 7-10 mm long, 7-13 mm in diameter, apex often naked and umbilicate, sometimes 1 or more calyx lobes persistent, black, juicy; seeds 1 or 2.

GENERAL DISTRIBUTION: Guatemala, Belize, Hispaniola, Puerto Rico, Jamaica, Trinidad; reported from Surinam but probably not native in South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Vincent!.

COMMON NAMES: Merisier bois, bois guépois, merisier, guépois, dji-pois.

Myrcia platyclada DC., Prodr. **3:** 244. 1828. FIGURE 177.

Type: French Guiana, *?Patris s.n.* (holotype, G-DC!; IDC 2562. 530: III. 2, photo!).
Syn.: *Aulomyrcia dumosa* O. Berg, Linnaea **30:** 656. 1861. (Lectotype: French Guiana, Richard 98 (P!).)
Aulomyrcia edulis O. Berg, Linnaea **30:** 657. 1861. (Type: French Guiana, *Richard 63* (P!).)
Myrcia dumosa (O. Berg) Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 580. 1895.
Myrcia edulis (O. Berg) Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 581. 1895.
Aulomyrcia platyclada (DC.) Amshoff, Bull. Torrey Bot. Club **75:** 531. 1948.

Tree to 12-15 m tall, with trunk 20 cm in diameter; essentially glabrous at maturity but youngest leaves, branchlets, and inflorescences thinly beset with pale or reddish, short, closely appressed and partly 2-branched hairs. Leaves with petioles essentially absent or to 3-5 mm long, without exfoliating outer layers; blades elliptic to obovate, 3-6 × 1.5-3 cm, mostly 1.5 to 2 times as long as wide, base acute or cuneate, apex shortly and obtusely acuminate or, especially in obovate leaves, obtuse or broadly rounded, midvein impressed or furrowed above, lateral veins not so, rigidly coriaceous, green upon drying or blackening on upper surface. Panicles 3-8 cm long, 3 times compound, the larger ones ca. 75-flowered, branches somewhat corymbosely arranged at end of stout peduncles 2-4 cm long and commonly 2-2.5 mm wide at summit, often noticeably flattened. Flowers with buds top-shaped, ca. 3 mm long; calyx lobes 5, unequal, rounded, incurved in bud and to 1 × 1.5 mm, splitting apart irregularly in anthesis and eventually falling away from hypanthium, finely and closely pubescent on inner surface; stamens 75 or more; disk cup-shaped, ca. 2 mm wide, glabrous; ovary 2-locular, style ca. 5 mm long. Fruits globose or nearly so, 1.2-1.5 cm in diameter, crowned by cuplike summit of hypanthium, with 1 or more calyx lobes sometimes attached, bright red or perhaps black at maturity.

GENERAL DISTRIBUTION: Trinidad, Tobago, northeastern Venezuela, French Guiana.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Merisier des hauts, merisier montagne.

Myrcia ramageana Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 586. 1895.

Type: St. Lucia, *Ramage s.n.* (holotype, B, n.v., presumably destroyed).

Shrub or small tree to 5-6 m tall; branchlets and inflorescences (including fruits) densely clothed with short, yellowish-brown, velvety pubescence, the hairs < 0.5 mm long. Leaves with petioles 4-6 × 1.5-2 mm; blades broadly elliptic or elliptic-obovate, 4-9 × 2-6 cm, 1.5 to 2 times as long as wide, base rounded, apex short-acuminate or obtuse, midvein furrowed above, markedly reticulate-veined on both sides when dry, rigidly coriaceous. Panicles 2-3.5 cm long including peduncle 0.5-2 cm long (or in type specimen 6-9 cm long including peduncle 2.5-3.5 cm long), with rather few flowers (3- to 11-flowered in specimens seen) grouped near branch apices. Flowers sessile or on pedicels 1-4 mm long; buds 3-4 mm long; calyx lobes 5, subequal, rounded, to 2.5 mm long and wide, apparently partly united in bud and splitting apart later, pubescent on both surfaces, persistent and coriaceous in fruit; disk flat, or in fruit cup-shaped or concave, 3-4 mm wide, densely pubescent; ovary 2-locualr, style 4-5 mm long or more. Fruits globose, 10-13 mm in diameter, becoming (when probably still immature) "red-orange."

GENERAL DISTRIBUTION: Known only from Dominica! and St. Lucia!.

COMMON NAME: Debasse godaux.

NOTES: Specimens from Dominica (Morne Couronne, 1500-1800 feet, *Webster 13233*, *Ernst 1981*, both at MICH!) are slightly less densely pubescent than those from St. Lucia, and in one plant the immature fruits have dried with about 8 longitudinal ribs, but there appear to be no other significant differences. On St. Lucia, collections from Piton Flore at 1875 feet (*Howard & Weaver 17941*, *Sturrock 462*, both at A!), and from La Sorcière, upper N ridge, 1800-2000 feet (*Proctor 21651* at A!, MICH!), apparently represent the same species as the original collection by Ramage, "in Fonds St. Jacques 600 m alt."

Myrcia splendens (Sw.) DC., Prodr. **3:** 244. 1828.

Basionym: *Myrtus splendens* Sw., Prodr. 79. 1788.
Type: Hispaniola, *Swartz s.n.* (presumed isotype, G-DC!; IDC 2562. 530: II. 6 (left-most specimen), photo!).
Syn.: *Eugenia periplocifolia* Jacq., Collectanea **2:** 108, *t. 4.* April 1789. (Type: Martinique, *Aquart s.n.* (W!).)
  Eugenia divaricata Lam., Encycl. **3:** 202. Oct. 1789. (Lectotype: Martinique, Plumier mss. vol. 7, *t. 82* (P!).)

Eugenia laxiflora Poiret *in* Lam., Encycl. Suppl. **3:** 123. 1813. (Type: Hispaniola, *Poiteau s.n.*, herb. Desf. (holotype, FI!).)

Myrcia divaricata (Lam.) DC., Prodr. **3:** 243. 1828.

Myrcia sororia DC., Prodr. **3:** 243. 1828. (Type: Trinidad, *Sieber 111* (holotype, G-DC!; IDC 2562. 530: II. 3, photo!).)

Shrub or tree to 10-12 m tall, with trunk 10-15 cm in diameter; abundantly pubescent or silky with ascending, lustrous, yellowish- or brownish-white hairs to 0.5-1 mm long, the hypanthium densely silky-strigose. Leaves with petioles 1-3(-4) mm long; blades elliptic-lanceolate to ovate, 3-9 × 1-3(-4) cm (to 12-15 cm long on vigorous sterile shoots), mostly 2 to 3 times as long as wide, base rounded to subcordate, apex prominently and often narrowly acuminate, margin puckered into auriclelike folds at summit of petioles, midvein impressed or furrowed above, usually bearing a line of stiff, erect hairs, strongly and finely reticulate-veined above, usually drying yellow-green. Panicles relatively slender, 4-6(-7.5) cm long, 3 times compound, with up to 50 flowers (often fewer). Flowers with buds 2-2.5 mm long; calyx lobes 5, subequal, broadly rounded or bluntly deltoid, 1-1.2 × 1.5-2 mm, glabrous or nearly so on inner surface; stamens 75 or more; disk flat or slightly concave, ca. 2-2.5 mm wide, densely hairy; ovary 2-locular, style 3.5-5.5 mm long. Fruits globose or slightly elongate-oval, 6-8 mm in diameter, rarely as much as 1.5 times as long as wide, black.

GENERAL DISTRIBUTION: Southern Mexico (Veracruz), Guatemala, Honduras, Belize, eastern Cuba, Hispaniola, Puerto Rico, Virgin Islands, Trinidad and Tobago, Panama and northern South America (where comparatively infrequent), southward to eastern Brazil and Amazonian Peru.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Barbados!.

COMMON NAMES: Birch, debasse ti feuille, bois créole, bois ti feuilles, merisier, petit feuille, bois baguette.

NOTE: Probably the most common member of the family, in primary and secondary forests.

MYRCIANTHES O. Berg

Myrcianthes O. Berg, Linnaea **27:** 315. 1856.

Syn. *Anamomis* Griseb., Fl. Brit. W. Indian Is. 240. 1860. (Type: *Anamomis fragrans* (Sw.) Griseb. (*Myrtus fragrans* Sw.); vide Britton & P. Wilson, Bahama Fl. 305. 1920.)

Shrubs or small trees. Leaves (perhaps never in West Indian species) sometimes ternate. Inflorescences axillary, 3- or 7-flowered dichasia, symmetrically forked; bracts and bracteoles scarious, deciduous. Flowers with hypanthium not prolonged beyond ovary, closely pale-pubescent or canescent; calyx lobes (in ours) 4, distinct, imbricate, appressed pubescent within, persistent; petals 4, conspicuous, white; stamens numerous, free; ovary 2-locular, ovules to 20 per locule, in a subcapitate group on the partition. Fruits fleshy, 1- or 2-seeded, purplish-black; seeds large, beanlike; testa papery; embryo with cotyledons free or only united at base, plano-convex, radicle shorter than cotyledons.

LECTOTYPE: *Myrcianthes apiculata* O. Berg = *Myrcianthes cisplatensis* (Cambess.) O. Berg; vide McVaugh, Taxon **5:** 143. 1956.

A genus of ca. 50 species from Florida, Mexico, Central America, the West Indies, and South America as far south as Argentina-Bolivia. For additional information see R. McVaugh, Fieldiana, Bot. **29:** 473-497. 1963 and Taxon **17:** 394-395. 1968.

Myrcianthes fragrans (Sw.) McVaugh, Fieldiana, Bot. **29:** 485. 1963.
FIGURE 178.

Basionym: *Myrtus fragrans* Sw., Prodr. 79. 1788; Fl. Ind. Occid. **2:** 914. 1798.
Type: Jamaica, *Swartz s.n.* (holotype, BM!).
Syn.: *Eugenia punctata* M. Vahl *in* West, Bidr. Beskr. Ste. Croix 216. 1793; Symb. Bot. **3:** 65. 1794. (Lectotype: St. Croix, *von Rohr s.n.* in herb. Vahl (C!).)
Eugenia fragrans (Sw.) Willd., Sp. Pl. **2:** 964. 1799.
Myrcia? balbisiana DC., Prodr. **3:** 243. 1828. (Type: Guadeloupe, *Bertero s.n.* (holotype, G-DC!; IDC 2562. 530: II. 1, photo!).)
Eugenia balbisiana (DC.) O. Berg, Linnaea **27:** 268. 1856.
Anamomis fragrans (Sw.) Griseb., Fl. Brit. W. Indian Is. 240. 1860.
Anamomis punctata (M. Vahl) Griseb., Fl. Brit. W. Indian Is. 240. 1860.
Eugenia fragrans (Sw.) DC. var. *brachyrrhiza* Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 665. 1895. (Syntypes: Guadeloupe, *Duss 3269*!, *2758*!.)

Shrub or small tree to ca. 15 m tall, more or less pale-pubescent or -strigose. Leaves opposite, with petioles 4-6 mm long; blades elliptic-ovate to obovate, mostly 3-7 cm long, base acute to cuneate, apex obtusely acuminate or occasionally rounded, midvein impressed above. Dichasia with peduncles 2-4(-6) cm long, with central flowers sessile. Flowers with calyx lobes 4 (rarely 5 in some flowers or as in the type of *Myrcia? balbisiana*), broadly rounded, 2.5-3.5 mm wide; petals 4-6 mm long; stamens ca. 150; ovules 15 to 20 per locule, style 6.5-7.5 mm long. Fruits subglobose, ca. 1 cm in diameter, smooth or roughened by many superficial glands.

GENERAL DISTRIBUTION: Eastern and southern Mexico, southern Florida, southward throughout the West Indies and through Central America to Panama; northeastern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts!, Antigua!, Saba!, St. Kitts!, Montserrat!, Guadeloupe!, Grenada!.

COMMON NAMES: Bois pelé, goyavier-montagne, bois d'Inde bâtard.

MYRCIARIA O. Berg

Myrciaria O. Berg, Linnaea **27:** 136, 320. 1856.

Shrubs or small trees, mostly pubescent. Flowers subsessile in axillary, usually 4-flowered, clusters; bracteoles similar to bracts, often persistently enveloping ovary, sometimes connate; hypanthium prolonged into a funnelform tube beyond ovary (stamens borne at summit of tube), cleanly circumscissile at base and falling as a unit from ovary, commonly glabrous; calyx lobes 4, distinct, imbricate, at anthesis mostly separated by irregular fissure in distal part of hypanthium; ovary broad and flat after fall of hypanthium, scarcely longer than involucre formed by bracteoles, ovules usually 2 per locule. Fruits mostly 1- or 2-seeded, naked and umbilicate at apex; seeds large, suborbicular, compressed, in dried fruits surrounded by spongy-crustose endocarp and membranous testa; embryo undivided, massive.

LECTOTYPE: *Myrciaria tenella* (DC.) O. Berg (*Eugenia tenella* DC.); vide McVaugh, Taxon **5:** 143. 1956.

A genus of ca. 40 species from Mexico, Central America, the West Indies, and South America. For additional information see R. McVaugh, Fieldiana, Bot. **29:** 499-504. 1963, and Taxon **17:** 392. 1968.

Myrciaria floribunda (West ex Willd.) O. Berg, Linnaea **27:** 330. 1856. FIGURE 179.

Basionym: *Eugenia floribunda* West ex Willd., Sp. Pl. **2:** 960. 1799.
Type: St. Croix, *West s.n.* (holotype, B-W #9524!; IDC 7440. 657: III. 5, photo!).

Shrub or small tree to 10 m tall, branches and inflorescences somewhat pubescent; bracteoles, hypanthium, and perianth with prominent glands. Leaves with short petioles; blades ovate or lanceolate, mostly to 6 × 2 cm, base rounded and then cuneate or acute, apex acuminate, midvein flat or slightly concave above. Raceme axes less than 1 mm long, bearing 1 or 2 pairs of flowers; bracteoles united into cuplike involucre finally 2 × 1.5 mm. Flowers with hypanthium ca. 1.5 mm long and wide; calyx lobes broadly rounded, 1-1.5 mm wide; petals 1.5 mm long; stamens ca. 75; style 4-5 mm long. Fruits globose or oblate, ca. 7 mm in diameter, soft and juicy, purplish.

GENERAL DISTRIBUTION: Southern Mexico, Cuba, Hispaniola, Puerto Rico, Colombia, the Guianas, Brazil.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, St. Eustatius!, St. Kitts!, Guadeloupe!, Martinique!.

COMMON NAMES: Guava berry, cherry guava, bois de basse, coco carette.

MYRTUS L.

Myrtus L., Sp. Pl. **1:** 471. 1753.

Shrubs with small leaves. Flowers axillary, solitary, 5-merous, pedunculate; bracteoles deciduous; hypanthium not or scarcely prolonged beyond vary, not splitting between calyx lobes at maturity; calyx lobes distinct, persistent; petals free; stamens numerous, filaments filiform, anthers short, longitudinally dehiscent; ovary 2-locular ovules numerous, in a subcapitate group attached to central dissepiment in each locule, style slender, stigma not or scarcely enlarged. Fruit a few- or many-seeded berry; seeds compressed, reniform or subhemispheric; testa bony; embryo pimentoid, commonly subcyclic.

LECTOTYPE: *Myrtus communis* L.

More than 700 names of species of *Myrtus* have been proposed, but almost all the species are now referred to other genera. In 1941, Burret took the view that *Myrtus* included 16 species only (*M. communis*, one additional species in North Africa, and 14 species in the West Indies). Of the West Indian species, 11 are natives of Cuba or Hispaniola and the other 3 are now treated together as a single species, *Psidium longipes*. It is likely that when the other Antillean species are better known they will also be excluded from Myrtus, leaving only 1 or 2 species in the latter genus.

Myrtus communis L., Sp. Pl. **1:** 471. 1753. FIGURE 180.

Type: Presumably a cultivated plant of European origin (LINN 637.1?).
Syn.: *Myrtus sparsifolia* O. Berg, Linnaea **27:** 402. 1856. (Type: St. Croix, *Oersted 8* (holotype, n.v.; presumed isotype (C!).)
Myrtus oerstedeana O. Berg, Linnaea **27:** 405. 1856. (Type: St. Croix, cultivated, *Oersted s.n.* (holotype, C!).)

Shrub ca. 1 m tall, with more or less 4-angled branchlets, pubescent or essentially glabrous. Leaves with short petioles; blades elliptic-lanceolate or -ovate, 1-4 cm long, usually tapering to narrow acute apex, coriaceous. Flowers on peduncles mostly 1-2 cm long; buds pyriform, 7-9 mm long; calyx lobes deltoid to short-ovate, acute or obtuse; style ca. 10 mm long. Fruits globose or ovoid, to 1 cm long or more, constricted beneath persistent calyx, black or purplish-black.

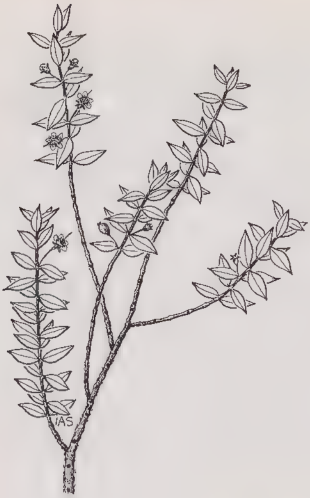
GENERAL DISTRIBUTION: Native of the Mediterranean region, widely cultivated as a hedge plant, especially in temperate regions.

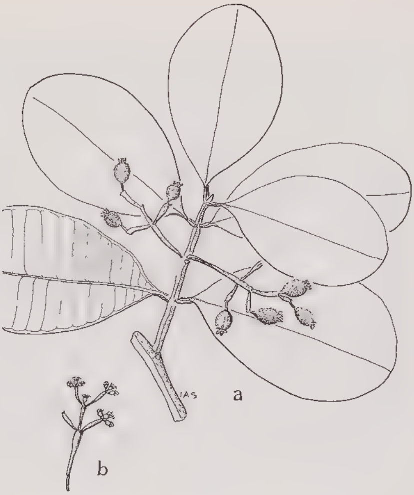
DISTRIBUTION IN LESSER ANTILLES: Introduced at several localities, but apparently never successful, and not known to have become naturalized anywhere. Reported by Urban for Martinique, but Duss records it from that island as a cultivated plant only. The species was included by Maycock in the flora of Barbados, but it is unknown as a naturalized plant on that island today.

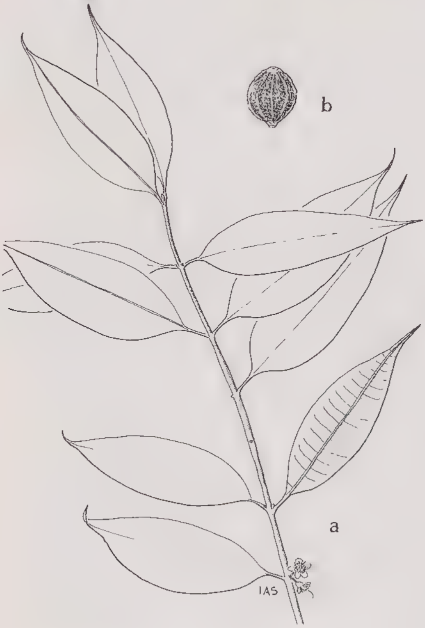
PIMENTA Lindley

Pimenta Lindley, Coll. Bot. **4:** *pl. 19.* 1821.

Trees, pubescent or nearly glabrous; foliage strongly fragrant when crushed; branchlets often strongly and acutely angled. Inflorescences axillary, myrcioid panicles; bracteoles deciduous. Flowers sometimes unisexual







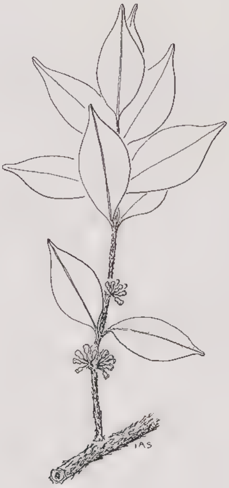


FIGURE 180 (upper left). *Myrtus communis*, × 0.35. FIGURE 181 (upper right). *Pimenta racemosa*: a, fruiting branch, × 0.35; b, inflorescence, × 0.35. FIGURE 182 (lower left). *Plinia pinnata*: a, flowering branch, × 0.35; b, fruit, × 1.0. FIGURE 183 (lower right). *Siphoneugenia densiflora*, × 0.35.

or apparently so, 4- or 5-merous; hypanthium little if at all prolonged beyond ovary; calyx lobes persistent, sometimes separated in age by irregular fissures in hypanthium; petals free, white; stamens numerous, filaments filiform, anthers short, longitudinally dehiscent; ovary bilocular in ours (rarely unilocular), ovules solitary, or 2 to 7, per locule, attached to subapical placenta, or "the placenta located near the apex of the septum," style subulate, stigma subcapitate or scarcely enlarged. Fruit a globose or oblate, black, berry; seeds usually 1 or 2, subglobose or reniform as far as known; testa membranous in ours, mostly appearing verrucose; embryo pimentoid, merely curved, or spiral and 2- or 3-cyclic.

TYPE: *Pimenta officinalis* Lindley = *Pimenta dioica* (L.) Merr.

A neotropical genus of 15 species, primarily from the West Indies and Central America. For additional information see L. R. Landrum, Fl. Neotropica Monogr. **45:** 72-115. 1986.

KEY TO THE SPECIES

Calyx lobes 5; dried leaves lustrous, conspicuously reticulate-veiny above; ovules 4 to 7 in each locule; plants essentially glabrous at maturity; widespread in the Lesser Antilles . . . . *P. racemosa*

Calyx lobes 4; dried leaves dull, smooth or inconspicuously veiny above; ovules 1(or 2) in each locule; plants moderately pubescent, hypanthium canescent; unknown in the Lesser Antilles except in cultivation . . . . *P. dioica*

Pimenta dioica (L.) Merr., Contr. Gray Herb. **165:** 37. 1947.

Basionym: *Myrtus dioica* L., Syst. Nat. ed. 10, **2:** 1056. 1759.
Type: from America, ex herb. Miller (LINN 637.11!).
Syn.: *Myrtus pimenta* L., Sp. Pl. **1:** 472. 1753. (Lectotype: Jamaica, Sloane, Voy. Jamaica *t. 191, fig. 1.* 1725.)
Pimenta officinalis Lindley, Coll. Bot. sub *t. 19.* 1821, nom. nov. for *Myrtus pimenta* L.

Tree to 20 m tall, 30 cm in diameter; vigorous branchlets flattened and 4-angled, the angles terminating distally in position of stipules; pubescence of sordid or yellowish-white hairs, hypanthium canescent. Leaves with petioles 1.5-2(-3) cm long; blades ovate or elliptic, 9-20 × 3-9 cm, mostly 2 to 3 times as long as wide, base acute to rounded, apex acute or very tip obtuse or subacuminate, margin decurrent, midvein deeply sulcate above, lateral veins 9 to 12 inconspicuous pairs, soon glabrate. Panicle 6-12 cm long, 3 to 4 times compound, many-flowered, on peduncles 2-5(-7) cm long. Flowers with buds 2.5-3.5 mm long; calyx lobes 4, subequal, rounded, 1.5 × 2 mm, canescent-tomentulose within; petals ca. 5 mm long; stamens ca. 150; floral disk 2.5 mm wide; ovules 1(or 2) per locule, style 4-5 mm long with stigma twice as thick. Fruits subglobose or oblate to pyriform, (4-)6-8 mm in diameter, verrucose with many convex, oil-bearing glands; seeds usually 2, suborbicular, compressed, embryo forming a double spiral.

GENERAL DISTRIBUTION: Southeastern Mexico, Central America; Jamaica, and perhaps natural in Cuba; widely cultivated and sometimes naturalized in the West Indies, and Bermuda. Apparently not naturalized in the Lesser Antilles.

NOTE: For additional synonymy see Urban, Bot. Jahrb. Syst. **19:** 571-573. 1895, or Landrum (1986).

Pimenta racemosa (Miller) J. Moore, Bernice P. Bishop Mus. Bull. **102:** 33. 1933. FIGURE 181.

Basionym: *Caryophyllus racemosus* Miller, Gard. Dict. ed. 8, *Caryophyllus* no. 5. 1768.

Type: Barbuda, ex herb. Miller (holotype, BM; NY neg. #11086).

Syn.: *Myrcia pimentoides* DC., Prodr. **3:** 243. 1828, nom. illegit. for *Myrtus cytrifolia* Poiret, which is either *Pimenta racemosa* or *Pimenta dioica* (see Landrum, 1986).

Amomis pimento O. Berg, Handb. Pharm. Bot. 340. 1855. (Lectotype: "Guiana Batava," *Wullschlaegel 977* (BR).)

Amomis pimento O. Berg var. *jamaicensis* O. Berg, Handb. Pharm. Bot. 340. 1855. (Lectotype: Antigua, *Hooker 837* (W!; designated by Landrum, loc. cit. p. 109).)

Amomis pimento O. Berg var. *surinamensis* O. Berg, Handb. Pharm. Bot. 340. 1855, nom. inadmissible to be replaced by *Amomis pimento* var. *pimento* as the type has been chosen as the lectotype of *Amomis pimento* (see Landrum, 1986).

Amomis pimentoides (DC.) O. Berg, Handb. Pharm. Bot. 340. 1855.

Pimenta acris Wight & Arn. var. *pimentoides* (DC.) Griseb., Fl. Brit. W. Indian Is. 241. 1860.

Pimenta pimento (O. Berg) Griseb., Fl. Brit. W. Indian Is. 241. 1860.

Tree to 12-13 m tall, often 6-7 m, practically glabrous at maturity, young herbage and inflorescences thinly pale-pubescent, calyx lobes densely pubescent within; branchlets strongly and acutely angled in lines descending from sides of petiole bases; foliage very aromatic with odor of lemon or citronella ("bay rum"). Leaves with stout petioles, distinct, 5-10 mm long; blades oblong to elliptic or obovate, (5-)7-12(-15) × 2.5-6(-8.5) cm, 1.5 to 2(or 3) times as long as wide, base rounded to cuneate, apex rounded to obtuse (very infrequently obscurely acuminate), midvein impressed above, conspicuously reticulate-veiny above when dry, coriaceous. Panicles 5-10 cm long, 2 to 3 times compound, with up to ca. 35 (rarely 75) flowers arranged mostly in 3's at branchlet apices. Flowers with buds top-shaped, 3-4 mm long; calyx lobes 5, appressed in bud, broadly triangular, to 1 × 2 mm, acute or obtusely angled, undulating and more or less rolled back with hypanthium margin after flowering; stamens 100 or more; disk saucer-shaped, 2.8-3.5 mm wide, densely hairy; ovules 4 to 7 per locule, style ca. 4 mm long. Fruits obovoid or ellipsoid, ca. 1 cm long, thickly covered with small, convex glands, contracted to thick neck beneath flaring calyx.

GENERAL DISTRIBUTION: Cuba, Puerto Rico, Virgin Islands, Trinidad, Surinam.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts, Barbuda!, Antigua!, Saba!, St. Eustatius!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada, Barbados!.

COMMON NAMES: Bois d'Inde, bois d'Inde vrai, bois deh, cinnamon, bay leaf, bay rum tree, bay tree, Christmas tree, bayberry tree.

NOTE: A distinct variety, *P. racemosa* var. *grisea* (Kiaerskou) Fosberg (Amer. Midl. Naturalist **27:** 762. 1942), occurs in Hispaniola, Puerto Rico, and the Virgin Islands. In this the inflorescence is closely gray-pubescent with persistent hairs.

PLINIA L.

Plinia L., Sp. Pl. **1:** 516. 1753.

Shrubs or small trees, pubescent. Inflorescences nearly sessile, axillary clusters subtended by broad, imbricate-involucrate bracts; bracteoles similar to bracts, sometimes connate, subpersistent. Flowers sessile, appressed-hispidulous or silky; hypanthium prolonged into a funnelform tube beyond ovary, with stamens borne just within margin; calyx completely closed in bud or very tips of 4 lobes free, with hypanthium splitting irregularly and longitudinally at anthesis into 4 unequal segments, the base after splitting explanate, usually 4-sided; petals 4 (sometimes wanting), distinct, white; stamens numerous (100 to 500), free; ovary 2 (rarely 3)-locular, ovules 2 per locule, collateral. Fruits subglobose or oblate, commonly 1-seeded; seeds bean-shaped, the cotyledons large and plano-convex, distinct or slightly united at margins.

TYPE: *Plinia pinnata* L.

A neotropical genus of perhaps 30 species, primarily found in the West Indies and South America. For additional information see R. McVaugh, Taxon **17:** 387-390. 1968 and Mem. New York Bot. Gard. **18**(2): 226-230. 1969.

Plinia pinnata L., Sp. Pl. **1:** 416. 1753. FIGURE 182.

Type: Martinique, "Plinia fructu crocea, odorato" Plum., Nov. Pl. Amer. 9, *pl. 11.* 1703.

Syn.: *Myrciaria trinitatis* O. Berg, Linnaea **27:** 336. 1856. (Type: Trinidad, *Sieber 151* (holotype, B, presumably destroyed; identity attested by Urban).)

Stenocalyx plumieri O. Berg, Linnaea **30:** 698. 1861. (Type: Martinique, *Richard 41* (P!).)

Eugenia plumieri (O. Berg) Niedenzu *in* Engl. & Prantl, Nat. Pflanzenfam. **3**(7): 82. 1893.

Marlierea glomerata sensu Urban, Bot. Jahrb. Syst. **19:** 589. 1895, non Berg (1855).

Shrub or small tree. Leaves with petioles 7-10 mm long; blades elliptic-ovate, to 10 cm long, base rounded to acute, apex acuminate with long acute points, midvein convex above, nearly glabrous. Inflorescence axes 1-2 mm long with up to 8 nodes but only 3 to 6 flowers; bracts sterile, conspicuous; bracteoles longer than bracts, obovate, 4 × 3 mm, silky and fimbriate-ciliate. Flowers with buds nearly closed, 4.5 mm long; hypanthium prolonged ca. 3 mm beyond ovary, the 4 free calyx tips approximate, 0.5 mm long, separating irregularly; petals 4, the inner very small, the outer 2 × 2.5 mm; stamens ca. 125. Fruits oblate, to 2 cm long and 3 cm or more in diameter, much roughened by 12 to 16 irregular, longitudinal ridges, yellow, flesh edible, sweet.

General distribution: Trinidad, Tobago.

Distribution in Lesser Antilles: Guadeloupe!, Martinique!, St. Lucia!.

Common names: Muscadier, muscade de la Martinique, bois muscade, bois de bass.

PSEUDANAMOMIS Kausel

Pseudanamomis Kausel, Ark. Bot. n.s. **3:** 511. 1956.

Tree or large shrub, densely strigose-pubescent. Inflorescences axillary, pedunculate, sometimes 3-flowered dichasia, usually irregularly several-flowered (subumbellate or with supernumerary branches, or an irregular panicle). Flowers with hypanthium not prolonged beyond ovary; calyx lobes 5, imbricate in bud, unequal, obtuse, membranous, separating from hypanthium and falling as fruit matures; petals 5, white; stamens numerous, free; ovary 2-locular, ovules 5 or 6 per locule, in a central subcapitate cluster. Fruits fleshy, orange-yellow, 1- or 2-seeded; seeds large, beanlike, with 2 thick, plano-convex cotyledons united ca. one-third their length; testa membranous; radicle less than half as long as cotyledons.

Type: *Pseudanamomis umbellulifera* (Kunth) Kausel (*Myrtus umbellulifera* Kunth).

A monotypic genus of unknown natural distribution.

Pseudanamomis umbellulifera (Kunth) Kausel, Ark. Bot. n.s. **3:** 512. 1956.

Basionym: *Myrtus umbellulifera* Kunth, Nov. Gen. Sp. **6:** 108 (ed. folio), 135 (ed. quarto). 1823.

Type: Venezuela, *Humboldt & Bonpland 560* (holotype, P!; IDC 6209. 146: III. 6, photo!).

Syn.: *Myrcia? umbellulifera* (Kunth) DC., Prodr. **3:** 255. 1828.
- *Eugenia esculenta* O. Berg, Linnaea **27:** 273. 1856. (Type: Hispaniola, *Rob. Schomburgk 79* (holotype, B, presumably destroyed; identity attested by Urban).)
- *Myrcianthes krugii* Kiaerskov, Bot. Tidsskr. **17:** 276, *t. 9C & fig. 9.* 1890. (Lectotype: Puerto Rico, *Sintenis 5503* (C!).)
- *Anamomis esculenta* (O. Berg) Sarg., Silva **5:** 31. 1893.
- *Anamomis umbellulifera* (Kunth) Britton, Bot. Porto Rico **6:** 42. 1925.

Tree or large shrub to 10-12 m tall. Leaves with short petioles; blades obovate or elliptic, mostly 3-6 cm long, base obtuse or acute, apex obtuse or rounded, midvein impressed above. Peduncle of inflorescence 1.5-2(-4) cm long. Flowers with calyx lobes 2-4 mm wide; petals 5-8 mm long; stamens 100 to 150; style 8-10 mm long. Fruits reportedly 2.5-5 cm in diameter, with edible, acidulous flesh; seeds 10-12 mm long.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, Trinidad, northern Venezuela and Colombia. Little known except as a cultivated tree.

DISTRIBUTION IN LESSER ANTILLES: Unknown; to be expected.

PSIDIUM L.

Psidium L., Sp. Pl. **1:** 470. 1753.

Trees or shrubs, or suffrutescent, commonly pubescent, often densely so, a few quite glabrous; branchlets sometimes acutely 4-angled. Flowers axillary, usually solitary, rarely in abbreviated racemes (''fascicles'') or dichasia, or at bracteate nodes on otherwise leafy branchlets; bracteoles mostly deciduous; hypanthium prolonged beyond ovary, with stamens arising from margin; calyx 4- or 5-toothed or -lobed in bud (in about 2/3 of known species) or completely closed or with a terminal pore, opening at anthesis by irregular fissures extending between lobes ca. to summit of ovary; petals 4 or 5, often large and showy, white; stamens numerous (mostly 100 to 200), filaments filiform, anthers oblong or linear, longitudinally dehiscent; ovary usually 3- or 4-locular (sometimes 2- to 7-, or by abortion 1-locular), ovules usually numerous, longitudinally biseriate in each locule, or in bilocular ovaries clustered, style subulate, stigma capitate, peltate, or in some species minute. Fruits globose or pyriform, sometimes large (to 10 cm long) and fleshy or juicy, many-seeded; seeds horseshoe-shaped or reniform; testa bony; embryo pimentoid, uncinate or curved.

TYPE: *Psidium guajava* L.

A genus of ca. 100 species in tropical and subtropical America, some widely cultivated and escaped in warm regions.

KEY TO THE SPECIES

1. Leaves subsessile (petioles mostly 1.5-2.5 mm long or less), suborbiculate to broadly ovate, elliptic or obovate, blades seldom more than 1.5 times as long as wide.
    2. Leaves mostly 5-7 × 3.5-6.5 cm; buds 12 mm long, closed, apiculate; fruits ca. 2 cm in diameter . . . . *P. amplexicaule*
    2. Leaves mostly 1.5-3.5 × 1-2 cm; buds 5-6 mm long; calyx lobes 4, 2.5-4.5 mm long; fruits probably 1 cm long and almost as thick . . . . *P. longipes* var. *orbiculare*
1. Leaves petiolate (petioles 3-10(-20) mm long), oblong or elliptic to obovate, blades 1.5 to 3 times as long as wide.

3. Lateral veins 12 to 20 on each side of midvein, usually impressed above, prominent beneath and well-differentiated from the small intermediate veins; herbage, especially when young, heavily pubescent with soft silvery-gray or pale reddish hairs; branchlets usually 4-angled; buds closed, 13-16 mm long; peduncles usually 1-flowered . . . . *P. guajava*
3. Lateral veins 5 to 10 on each side of midvein, usually narrow and convex above, if more than 10 then very slender and scarcely differentiated from intermediate veins; pubescence, branchlets, and flowers various.
    4. Lower leaf surface hirsutulous or tomentose, the numerous hairs 0.5-1 mm long, often obscuring surface; inflorescences often 3-flowered; buds 10-12 mm long, closed or very nearly so at apices . . . . *P. guineense*
    4. Lower leaf surface glabrous, or sparingly pubescent or strigose; peduncles 1-flowered; buds ca. 8 mm long; calyx with 4 or 5 low, broad, rounded lobes forming an undulating margin . . . . *P. cattleianum*

Psidium amplexicaule Pers., Syn. Pl. **2:** 27. 1806.

Type: St. John, *Richard s.n.* (P-JU #13846!; IDC 6206. 1020: III. 7, photo!).
Syn.: *Psidium cordatum* Sims, Bot. Mag. **43:** *t. 1779.* 1816. (Type: Cultivated, originally from Nevis, *Tobin* ex herb. Lambert. (n.v.).)

Shrub or tree 2-4 m tall, glabrous at maturity with youngest branchlets pubescent; branchlets terete. Leaves nearly sessile or petioles to 1.5 × 2.5 mm; blades suborbiculate to broadly ovate or obovate, (3-)5-7 × (2-)3.5-6.5 cm, almost as wide as long or up to 1.5 times as long as wide, base rounded or commonly subcordate, apex broadly rounded, surfaces dull and inconspicuously veined, midvein flat or concave above, fleshy, rigidly coriaceous. Flowers axillary, sometimes apparently terminal, usually 1 or 2 at apex of short axillary branch 2-3 mm long; bracts fleshy, 1.5 mm long; bracteoles narrow, 1.5-2 mm long, acute; peduncles 7-10 mm long; buds pyriform, 12 mm long, apiculate, entirely closed; calyx splitting irregularly at anthesis, minutely whitish- or rufous-pubescent within; stamens 200 or more; disk 4.5 mm wide; style 7 mm long or more, stigma peltate. Fruits reportedly subglobose, ca. 2 cm in diameter, aromatic, acid in flavor.

GENERAL DISTRIBUTION: Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: Nevis (the original seeds of *P. cordatum* were collected by James Tobin from the only tree known to grow on the island), Guadeloupe (herb. Sonder, according to Berg).

Psidium cattleianum Sabine, Trans. Hort. Soc. London **4:** 317, *t. 11.* 1821.

Type: From a plant cultivated in England, *Cattley s.n.* (n.v.); said to have come from seed from China.
Syn.: *Psidium littorale* Raddi, Alc. Sp. Pero 6, *t. 1, fig. 2.* 1821. (Type: Coast of Brazil, *Raddi s.n.* (FI, n.v.).)

Shrub or small tree, glabrous or minutely puberulent. Leaves with petioles 3-10(-20) mm long; blades cuneate-obovate 4-12 × 1.5-6 cm, 1.75 to 3 times as long as wide, base cuneate or acute, apex mostly obtuse or rounded, margin decurrent, midvein flat or slightly impressed above, lateral veins 5 to 10 pairs. Flowers solitary in axils of leaves or bracts, rarely 2 or 3 pairs in short racemes; peduncles 4 mm long (to 8-15 mm in fruit); buds pyriform, 8 mm long, always glabrous; calyx margin undulate, with 4 or 5 broad, low, rounded lobes, splitting between lobes into segments 5 or 6 mm long and wide; style 6 mm long, stigma 1.3-1.4 mm wide. Fruits obovoid or globose, 1.5-3.5 cm long, purplish-red or yellow, thin-skinned with white, sweet pulp.

GENERAL DISTRIBUTION: Probably native of southeastern Brazil, cultivated throughout the tropics and often established.

DISTRIBUTION IN LESSER ANTILLES: Nevis!, Montserrat!, Guadeloupe!, Martinique!.

COMMON NAMES: Goyavier prune, goyavier de St. Martin.

Psidium guajava L., Sp. Pl. **1:** 470. 1753. FIGURE 184.

Lectotype: A cultivated plant, ex Hort. Cliff. (BM!).

Syn.: *Psidium pumilum* M. Vahl var. *guadalupense* DC., Prodr. **3:** 233. 1828. (Type: Guadeloupe, *Bertero s.n.* (holotype, G-DC!; IDC 2562. 527: I. 8, photo!).)

Psidium guajava L. var. *pumilum* (M. Vahl) Griseb., sensu Fl. Brit. W. Indian Is. 241. 1860.

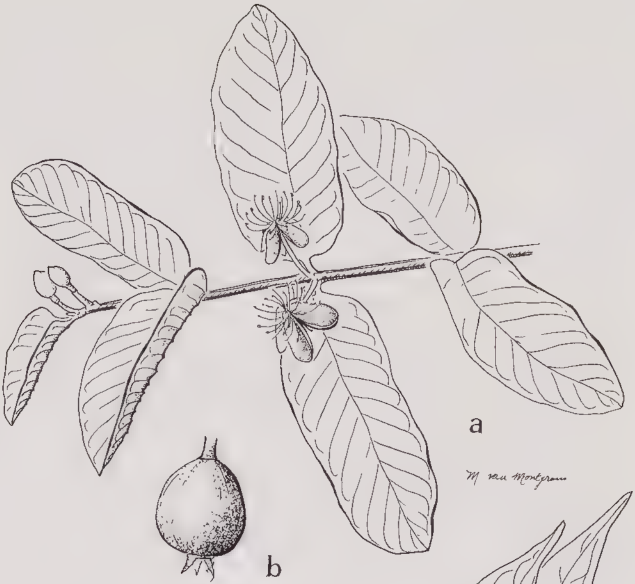
Psidium guajava L. var. *cujavillum* Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 566. 1895, vix *P. cujavillus* Burman, Fl. Indica 114. 1768.

Shrub or tree to 10 m tall, pubescent, inflorescences and at least lower leaf surface with mostly appressed, gray or reddish hairs to ca. 0.5 mm long; branchlets terete or quadrangular. Leaves with petioles 4-7(-10) mm long; blades elliptic or oblong, mostly 8-14 × 3-6 cm, 2 to 3 times as long as wide, base rounded or acute, apex obtusely pointed or rounded, lateral veins 12 to 20 pairs, conspicuous and parallel, these and midvein impressed above. Flowers axillary, solitary (very rarely 3 together), on peduncles mostly 1-2 cm long, to 2.5 mm thick in fruit; buds closed, 13-16 mm long, enlarged abruptly into ovoid-pointed calyx splitting at anthesis into 4 or 5 irregular lobes; petals 10-12 mm long; stamens conspicuous, 150 to 175; style 10-12 mm long, stigma 0.5 mm wide. Fruits globose or pyriform, 1-6 cm long, outer layers and fragrant, juicy, sweet or acid pulp yellow or pink.

GENERAL DISTRIBUTION: Native of tropical America, generally cultivated and extensively naturalized in tropics and subtropics of both Old and New Worlds.

DISTRIBUTION IN LESSER ANTILLES: Probably on every island large enough to support trees and human habitation. Anguilla!, St. Martin!, St. Barts!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Guava, white guava, goyave, kwiyábu, goyavier, gwiyav.



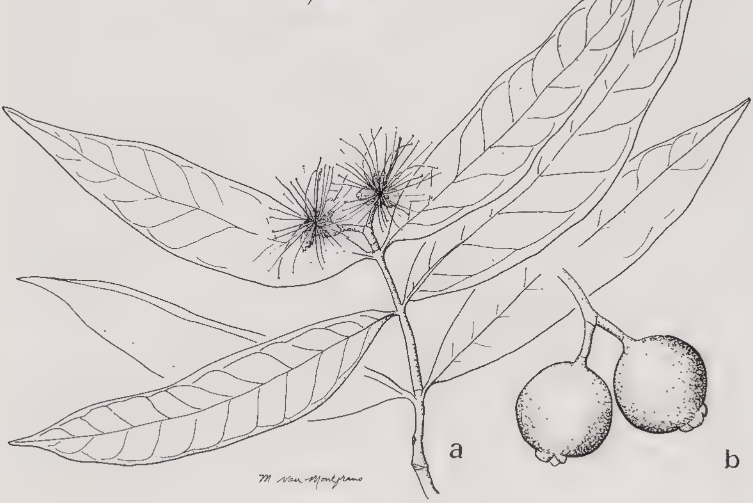


FIGURE 184 (upper). *Psidium guajava*: a, flowering branch, × 0.5; b, fruit, × 0.5.
FIGURE 185 (lower). *Syzygium jambos*: a, flowering branch, × 0.5; b, fruit, × 0.5.

Psidium guineense Sw., Prodr. 77. 1788.

Type: Cultivated in Hispaniola, *Swartz s.n.* (BM!).
Syn.: *Psidium polycarpon* Lambert, Trans. Linn. Soc. London **11:** 231. *t. 17.* 1815. (Type: grown from seeds Alexander Anderson obtained in Trinidad.)

Shrub 1-2.5 m tall or occasionally a small tree, usually heavily pubescent with erect, pale- or coppery-red hairs to 1 mm long; branchlets terete or compressed, rarely angled below leaf bases. Leaves with petioles 5-10 mm long; blades broadly elliptic or obovate, mostly 6-10 × 4-6 cm, 1.5 to 2.3 times as long as wide, base rounded or obtuse, or subcuneate, apex rounded or obtuse, midvein slightly impressed above, lateral veins convex on upper surface, strongly arching-ascending. Inflorescences axillary, often 3-flowered (sometimes 1-flowered), on peduncles (1.2-)1.7-3.2 cm long; lateral flowers on pedicels 8-12 mm long. Flowers with buds incompletely closed, 10-12 mm long, enlarged abruptly into obtusely pointed or nearly globose calyx splitting at anthesis into 4 or 5 irregular lobes; petals 10-14 mm long; stamens conspicuous, 150 to 200; style 7-11 mm long, stigma 0.5 mm wide. Fruits globose or pyriform, 1-2 cm in diameter, yellowish-green or yellow, mostly resinous or bitter, unpalatable.

GENERAL DISTRIBUTION: Widespread from Mexico and the West Indies to Argentina. Apparently not common in the West Indies and perhaps introduced there; Cuba, Jamaica (where "occasional," according to the Flora of Jamaica), Hispaniola.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Martinique.

COMMON NAME: Goyavier fraise.

Psidium longipes (O. Berg) McVaugh, J. Arnold Arbor. **54:** 312. 1973.

Basionym: *Eugenia longipes* O. Berg, Linnaea **27:** 150. 1856.
Type: Florida, *Leitner s.n.* (as "*Cabanis*") (holotype, B, presumably destroyed; identity attested by Urban).

Represented in the Lesser Antilles by the following variety only:

Psidium longipes (O. Berg) McVaugh var. **orbiculare** (O. Berg) McVaugh, J. Arnold Arbor. **54:** 314. 1973.

Basionym: *Eugenia orbicularis* O. Berg, Linnaea **30:** 678. 1861.
Type: Barbuda ("Barbados"), *Richard s.n.* (holotype, P!).
Syn.: *Myrtus orbicularis* (O. Berg) Burret, Notizbl. Bot. Gart. Berlin-Dahlem **15:** 482. 1941.

Shrub to 2-3.6 m tall, glabrous, or branchlets, petioles, and peduncles minutely hispidulous. Leaves with petioles 1.5-2.5(-5) mm long; blades broadly ovate, elliptic, or suborbiculate, 1.3-4(-5.6) × 0.7-2(-3.7) cm, as wide as long, or more commonly 1.5 to 1.7 times as long as wide, base rounded or subcordate, apex rounded or obtusely pointed, midvein convex above, coriaceous. Flowers solitary or occasionally in 3's on peduncles 1.5-2(-3.5) cm long, either in short axillary racemes, or commonly from axils of deciduous bracts at lowest 1 or 2 nodes of otherwise leafy branchlets; bracteoles elliptic or obovate, 1-4 mm long, membranous, foliaceous, loosely spreading and only subpersistent below narrow base of hypanthium; buds 5-7 mm long; calyx lobes 4, oblong or quadrate to obtusely deltoid, 2.5-4.5 mm long, membranous or foliaceous, reflexed in flowering, at maturity separated by irregular fractures in sinuses between them; stamens 150 to 200 or more; disk more or less 4-angled, 2.7-4 mm wide; style 4-7 mm long. Fruits not seen mature, probably (as in var. *longipes*) an ellipsoid berry ca. 1 cm long, several-seeded, constricted beneath persistent upstanding calyx, black or purplish-black.

GENERAL DISTRIBUTION: Eastern Bahamas, Turks and Caicos Islands, northern Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!.

COMMON NAME: Mangrove berry.

SIPHONEUGENA O. Berg

Siphoneugena O. Berg, Linnaea **27:** 136, 344. 1856.

Shrubs or small trees. Flowers short-pedicellate in short axillary racemes; bracteoles scarcely connate, much shorter than ovary; hypanthium glabrous, prolonged into funnelform tube beyond ovary (stamens borne at summit of tube), splitting irregularly between calyx lobes, the segments rolled back with petals and stamens as far as staminal ring, the whole structure cleanly circumscissile at summit of ovary, falling as a unit; calyx of 2 unequal pairs of small lobes; petals 4, white; stamens numerous, free; ovary fusiform or campanulate, 2-locular, ovules 4 (seldom 3 or 2) per locule. Fruits mostly 1-seeded, naked and umbilicate at apex; seeds subglobose, with membranous testa, the cotyledons very thick, plano-convex, distinct or somewhat united at margins.

LECTOTYPE: *Siphoneugena densiflora* O. Berg; vide McVaugh, Taxon **5:** 146. 1956.

A neotropical genus of (1 to) several species, principally from Venezuela and Brazil. For additional information see R. McVaugh, Fieldiana, Bot. **29:** 507-511. 1963 and Taxon **17:** 390-392. 1968.

Siphoneugena densiflora O. Berg *in* C. Martius, Fl. Bras. **14**(1): 379. 1857. FIGURE 183.

Type: Southern Brazil, *Schüch s.n.* (W!).
Syn.: *Marlierea dussii* Krug & Urban ex Urban, Bot. Jahrb. Syst. **19:** 590. 1895. (Syntypes: Puerto Rico, *Sintenis 4345*; Guadeloupe, *Duss 2750* (isosyntype, K!).)
Plinia dussii (Urban) Urban, Repert. Spec. Nov. Regni Veg. **15:** 413. 1919.

Shrub or small tree, rather sparingly pubescent; inner faces of petals and calyx lobes silky-tomentose. Leaves with short petioles; blades elliptic-ovate, to 10 cm long, base cuneate, apex acute to acuminate (often abruptly so), midvein convex on upper surface, coriaceous. Inflorescences very short racemes, with up to ca. 10 flowers; bracts persistent; bracteoles ovate, persistent. Flowers on compressed pedicels, to 5 mm long; buds 3.5-4.5 mm long; hypanthium prolonged 1.5-2.5 mm beyond ovary; petals obovate, small; stamens 75 to 100; style 4-6 mm long. Fruits globose or nearly so, 1 cm in diameter or less, purplish-black, soft and edible.

GENERAL DISTRIBUTION: Puerto Rico, Venezuela, southern Brazil.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, Grenada!.

COMMON NAMES: Cerisier montagne, merisier des hauts, bois de basse.

SYZYGIUM P. Browne ex Gaertner

Syzygium P. Browne ex Gaertner, Fruct. Sem. Pl. **1:** 166. 1788, nom. cons.

Trees or shrubs, mostly glabrous. Leaves penninerved, usually with an intramarginal vein. Inflorescences usually terminal, or terminal and axillary, panicles or cymes, or flowers solitary; bracteoles inconspicuous and fugacious. Flowers 4- (seldom 5-)merous; hypanthium variously or not at all prolonged beyond ovary, the base usually prolonged to a pseudostalk above bracteoles, upper part remaining entire or rarely splitting between calyx lobes after anthesis; calyx lobes various, persistent or deciduous; petals free or (in numerous species) more or less united into a calyptra; stamens usually numerous in several series, free or obscurely collected into 4 bundles, filaments filiform, anthers longitudinally dehiscent; ovary bilocular (rarely 3- or 4-locular), locules commonly near distal part of ovary, ovules few or numerous per locule, in crowded subcapitate clusters attached to central dissepiment, styles filiform, stigma minute. Fruit a fleshy or dry and leathery berry with 1 or 2, rarely more, seeds; seeds usually large; testa membranous to crustaceous; cotyledons fleshy, completely free or partially fused (rarely completely fused).

LECTOTYPE: *Syzygium caryophyllaeum* Gaertner; vide McVaugh, Taxon **5:** 164. 1956.

A genus of 700 to 800 species, included by many authors in *Eugenia*. The species are all natives of the Old World tropics, several introduced and naturalized in the warmer parts of America. *Syzygium aqueum* (Burm. f.) Alston, the water rose apple, with top-shaped white fruits is represented by a single plant in the botanic garden on Guadeloupe.

KEY TO THE SPECIES

1. Hypanthium cylindric, 1-1.5 cm long; calyx lobes acute, triangular-ovate, 3-4 mm long; leaves obtusely short-acuminate at apex, long-tapering to base . . . . *S. aromaticum*
1. Hypanthium obovoid or funnelform; calyx lobes very much shorter, or rounded and much larger, 3-10 mm long.
    2. Calyx very short, indistinctly 4-lobed; petals coherent, falling in a flat, orbicular calyptra ca. 2.5 mm dia.; buds 5-6 mm long; panicles 3 or 4 times compound, 4-12 cm long, many-flowered . . . . *S. cumini*
    2. Calyx of 4 broad, rounded lobes 3-10 mm long; petals free, 1-1.5 cm long; buds 1.5-3 cm long.
        3. Leaves long-tapering to both ends, 4 to 5 times as long as wide; flowers white, mostly 2 to 4 pairs in a terminal raceme . . . . *S. jambos*
        3. Leaves rounded or even subcordate at base or, if tapering to base then abruptly acuminate or obtuse at apex, and less than 3 times as long as wide; flowers in racemes or panicles, commonly lateral at leafless nodes, sometimes terminal.
            4. Flowers pink or red, mostly in crowded lateral clusters; leaves mostly cuneately narrowed at base . . . . *S. malaccense*
            4. Flowers white, in loose, lateral or terminal, few-flowered panicles; leaves abruptly rounded or even slightly cordate at base . . *S. samarangense*

Syzygium aromaticum (L.) Merr. & Perry, Mem. Amer. Acad. Arts. Sci. **18**(3): 196. 1929.

Basionym: *Caryophyllus aromaticus* L., Sp. Pl. **1:** 515. 1753.
Lectotype: "Habitat in Moluccis," ex Hort. Cliff.?, (BM?, n.v.).
Syn.: *Eugenia caryophyllata* Thunb., Caryoph. Arom. 1. 1788, illegit. nom. nov. for *Caryophyllus aromaticus* L.
Eugenia aromatica (L.) Baillon, Hist. Pl. **6:** 340. 1876.

Tree to 20 m tall, glabrous. Leaves with petioles 1-2.5 cm long; blades lanceolate or narrowly elliptic, sometimes narrowly obovate, to 12 × 4.5 cm, base cuneate-attenuate, apex obtusely short-acuminate, coriaceous. Panicles terminal, compact, 3-5 cm long, often 10- to 20-flowered, short-pedunculate or branched from base, trichotomous, flowers mostly in 3's near apices of short, thick branchlets; bracteoles 2-3 mm long, quickly caducous. Flowers with buds ca. 1.5-2 cm long; hypanthium cylindric, 1-1.5 cm long, ca. 5 mm in diameter below calyx, narrowed at base, without pseudostalk; calyx lobes narrowly ovate, ca. 3-4 mm long, acute, fleshy, erect to spreading; petals not coherent, but falling together in a hemispheric calyptra ca. 6 mm in diameter, greenish; stamens very numerous, white; style 4-4.5 mm long. Fruits oblong, 2.5-3 cm long, 1.3-1.5 cm in diameter, pulpy with enlarged, narrow, incurved calyx lobes hiding apical excavation; seed 1, oblong, ca. 2 cm long.

GENERAL DISTRIBUTION: Native of the Moluccas, long cultivated in the tropics for the oil and spice ("cloves") obtained from the dried flower buds, and naturalized to a limited extent in warm regions.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Vincent!, Grenada!.

COMMON NAMES: Cloves, giroflier, clou de girofle.

Syzygium cumini (L.) Skeels, U.S.D.A. Bur. Pl. Industr. Bull. **248:** 25. 1912.

Basionym: *Myrtus cumini* L., Sp. Pl. **1:** 471. 1753.
Type: Ceylon, described in Fl. Zeyl. 185 (n.v.)
Syn.: *Eugenia jambolana* Lam., Encycl. **3:** 198. 1789. (Lectotype: East Indies, *Sonnerat s.n.* (holotype, P-LA, n.v.; IDC 6207. 234: II. 6, photo!).)
Syzygium jambolanum (Lam.) DC., Prodr. **3:** 259. 1828.
Eugenia cumini (L.) Druce, Bot. Exch. Club Soc. Brit. Isles **3:** 418. 1914.

Tree 6-20(-30) m tall, glabrous. Leaves with petioles 1-2.5 cm long; blades oblong-ovate to elliptic-oblong, 7-18 × 3-8 cm, 2.5 to 3 times as long as wide, base acute to cuneate, apex shortly or abruptly acuminate, rarely obtuse, midvein broadly sulcate above, coriaceous. Inflorescences terminal or often lateral at leafless nodes below apices of branches, cymose-paniculate, 4-12 cm long, 3 to 4 times compound, peduncles 1-3 cm long; flowers sessile in groups of 3 or more near apices; bracteoles deltoid, 0.5-1.5 mm long, deciduous at or before anthesis. Flowers with buds pyriform, 5-6 mm long, on stout pseudostalk 1(-2) mm long; calyx truncate, evidently prolonged beyond ovary, 2.5-3 mm across the mouth, the 4 lobes obscure, very broad and low, quickly deciduous; petals coherent, falling in a flat, orbicular calyptra ca. 2.5 mm in diameter; stamens ca. 100; style 5-7 mm long. Fruits oblong to oblong-ellipsoid, asymmetric, 1.5-2 × 1-1.5 cm, umbilicate, black, edible; seed 1-1.5 cm long, cotyledons unequal, not fused.

GENERAL DISTRIBUTION: Indo-Malayan region, thence introduced and spreading from cultivation in many parts of the tropics.

DISTRIBUTION IN LESSER ANTILLES: Antigua, Guadeloupe!, Martinique!, St. Vincent!.

COMMON NAMES: Jack plum, Java plum, jambolan, tété négresse.

Syzygium jambos (L.) Alston *in* Trimen, Handb. Fl. Ceylon **6:** 115. 1931.
FIGURE 185.

Basionym: *Eugenia jambos* L., Sp. Pl. **1:** 470. 1753.
Type: "In India," lectotypification needed.
Syn.: *Jambosa vulgaris* DC., Prodr. **3:** 286. 1828, based on *Eugenia jambos* L.
Jambosa jambos (L.) Millsp., Publ. Field Columbian Mus., Bot. Ser. **2:** 80. 1900.

Shrub or small tree, glabrous. Leaves with petioles ca. 1 cm long; blades lanceolate or elliptic-lanceolate, 12-20 × 3-5 cm, 4 to 5 times as long as wide, base subcuneate or gradually rounded, apex cuneate-attenuate, narrowly acuminate, midvein impressed above. Inflorescences terminal racemes to 2.5 cm long, bearing 1 to 4 pairs of large flowers; bracteoles fugacious. Flowers on pedicels to 1.5 cm long, 1-1.5 mm thick; buds 2-2.5 cm long; hypanthium obconic, 1.5 cm long, on stout, poorly defined pseudostalk 2-3 mm long; calyx lobes broadly rounded, the larger pairs 6 mm long, 1 cm wide at base; petals orbiculate, ca. 1.5 cm wide, white; stamens ca. 300, conspicuous, to 4 cm long; style 3.5-4 cm long. Fruits broadly depressed-globose, to 6 cm in diameter, pale yellow with pink flush, rose-scented; seed ca. 2.5 cm in diameter.

General distribution: Native of the Indo-Malayan region, now pantropic in cultivation and often becoming naturalized.

Distribution in Lesser Antilles: St. Martin!, Antigua!, Saba, St. Eustatius!, St. Kitts, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

Common names: Pomme rose, pomme de rose, rose apple, rose plum.

Syzygium malaccense (L.) Merr. & Perry, J. Arnold Arbor. **19:** 215. 1938.

Basionym: *Eugenia malaccensis* L., Sp. Pl. **1:** 470. 1753.
Type: "In India," lectotypification needed.
Syn.: *Jambosa malaccensis* (L.) DC., Prodr. **3:** 286. 1828.

Tree 8-20 m tall, glabrous. Leaves with petioles 1-1.5 cm long, 2-3(-5) mm thick; blades drooping, usually large, oblong-lanceolate to oblong-elliptic or somewhat obovate, to 35-36 × 18 cm, 1.7 to 2.7 times as long as wide, base cuneate or somewhat rounded, apex abruptly acuminate or merely obtuse, midvein impressed above, coriaceous. Inflorescences stout, axillary racemes formed at (usually leafless) nodes below ends of branchlets; raceme axis 1-1.5 cm long, bearing 2 to 5 pairs of large flowers; bracteoles 1-2 mm long, deciduous before anthesis. Flowers on pedicels 1-2 (rarely 3) mm long; buds 1.5-3 cm long; hypanthium funnelform, 1 cm across the mouth, on stout pseudostalk 6-10 mm long; calyx lobes in unequal pairs, broadly rounded, 6-10(-15) mm wide, the larger ones 3-6(-10) mm long, margin thin, pale; petals 1-1.5 cm long, pink to red; stamens ca. 300, red; style 2.5-3.5 cm long. Fruits oblong or obovoid, 4.5 cm long, 2.5 cm in diameter, umbilicate, pinkish to dark red, with agreeable acid flavor; seed subglobose, 1.5-2 cm in diameter.

General distribution: Native of the Indo-Malayan region, now more or less pantropic in cultivation and often becoming naturalized.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

Common names: Pome d'maite, pomme d'amour, malay-apple, pomme de taiti, pomm damou, pomera.

Syzygium samarangense (Blume) Merr. & Perry, J. Arnold Arbor. **19:** 115. 1938.

Basionym: *Myrtus samarangensis* Blume, Bijdr. 1084. 1826.
Type: From a plant cultivated in the Netherlands East Indies, *Blume s.n.* (n.v.).
Syn.: *Eugenia javanica* Lam., Encycl. **3:** 200. 1789. (Type: Java, *Commerson s.n.* (holotype, P-LA, n.v.; IDC 6207. 235: II. 7, photo!).)
Jambosa samarangensis (Blume) DC., Prodr. **3:** 286. 1828.

Small to medium-sized tree, glabrous. Leaves with petioles 5 mm long or less; blades broadly oblong to elliptic, elliptic-lanceolate, or narrowly ovate, 10-25 × 4-10 cm, 2 to 3 times as long as wide, base rounded or even slightly cordate, apex acute or subacute, midvein broadly channeled above, subcoriaceous. Panicles terminal or axillary, 5-10 cm long and broad, on peduncles to 3 cm long or much less; flowers in 2's or 3's or solitary near apices of branchlets; bracteoles thin, soon deciduous. Flowers sessile or on pedicels to 1 cm long; buds pyriform, 1.5-2 cm long; hypanthium obovoid or top-shaped, ca. 1-1.5 cm long, 1.5 cm thick, narrowed at base to short, stout pseudostalk; calyx lobes broad and low, rounded, 4-5 mm long, ca. 1 cm wide at base, persistent; petals obovate-orbiculate, 1-2.5 cm long, white; stamens numerous, white, filaments to 2.5 cm long; style 2-3 cm long. Fruits broadly obconic or pyriform to turbinate, 4-6 cm long and broad (or larger in cultivation), slightly ribbed, greenish or whitish to red when ripe, with thick, slightly juicy flesh; seeds 1 or 2, 1-2.5 cm in diameter.

GENERAL DISTRIBUTION: Lower Burma, Andaman Is., Nicobar Is., extending to Java, cultivated throughout the tropics.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!; according to Duss it was naturalized in Guadeloupe by 1892.

COMMON NAMES: Framboisier, pomme de malacca.

DOUBTFUL AND EXCLUDED TAXA

Genus and Species unknown

Apparently a shrub, sterile; branchlets terete (new and 1 to 2 years old), finely but evidently hispidulous. Leaves with petioles 0.5-1.5 mm long; blades obovate, 0.7-2 × 0.5-1.8 cm, base mostly rounded, apex rounded or retuse, margin thick, revolute, obscurely veined with midvein pale, flat above, rigidly coriaceous at maturity, drying pale brown beneath, quite glabrous (even the newest).

Anguilla: The Valley, plateau calcaire, 15-20 m alt., May 9, 1955, *Le Gallo 2493* (NY); ibid., près de la chapelle catholique, *Le Gallo 2480* (NY). Howard and Kellogg (J. Arnold Arbor. **68:** 125. 1987) made an intensive search for this plant in 1985 and failed to find it.

Calyptranthes sintenisii Kiaerskov, Bot. Tidsskr. **17:** 250. 1889.

Reported from Hispaniola, Puerto Rico, and Martinique (*Plée 794*). According to Urban, Plée's specimen may have come from Puerto Rico. No other specimen is known from the Lesser Antilles. Plée died in Martinique in 1825, and those who labeled his collections after his death are known to have attributed other Puerto Rican plants to Martinique (Symb. Antill. **3:** 101. 1902.).

Eugenia aeruginea DC., Prodr. **3:** 283. 1828.

Reported by Grisebach (Fl. Brit. W. Indian Is. 237. 1860) from Dominica, and by Urban (Bot. Jahrb. Syst. **19:** 624. 1895) from Dominica, Martinique, and St. Vincent. The plant reported by these authors was in fact *E. domingensis* O. Berg, q.v. For a note on the nomenclature of *E. aeruginea*, see N. Y. Sandwith, Kew Bull. **1934:** 125. 1934.

Eugenia glabrata (Sw.) DC., Prodr. **3:** 274. 1828.

Two collections supposedly from Martinique (*Hahn 1155* and *1855*, both at G), apparently represent this Jamaican species. I find no other record of the species from the Lesser Antilles. Perhaps the specimens were erroneously labeled or the plants were cultivated in the botanic garden at St. Pierre.

MELASTOMATACEAE

MELASTOMATACEAE A. L. Juss., Gen. Pl. 328. 1789 ('Melastomae').

Perennial herbs, shrubs, or small trees. Leaves opposite, decussate, those of a pair sometimes unequal, petiolate or sessile; blades simple, entire or dentate, membranaceous to coriaceous, acrodromous with 1 to 3 pairs of veins, all basal or some suprabasal, secondary venation clearly parallel (in *Mouriri* primary veins wanting, secondary veins pinnate); estipulate. Inflorescences terminal or axillary or borne below leaf-bearing nodes, flowers solitary, clustered, in cymes or panicles of cymes, sometimes secund on branchlets. Flowers perfect or if unisexual the plants dioecious, mostly 4- to 6-parted; hypanthium subglobose to cylindric; sepals small, open or closed in bud, sometimes calyptrate, often with extra teeth or lobes borne on exterior; petals usually white, pink, or purple; stamens twice as many as petals or pleiostemonous (*Conostegia*), anthers inflexed in bud, ovoid to subulate, usually with terminal pore or with 2 pores, or opening by longitudinal slits, connective often prolonged below anther sacs and enlarged into lobes, spurs, or appendages; ovary free, or united with hypanthium and inferior, 2- to 10-celled, ovules numerous and axile (basal and few in *Mouriri*), style usually slender, stigma punctiform to peltate, simple or lobed. Fruits enclosed in persistent hypanthium and capsular, or baccate; seeds numerous, minute, ovoid or linear or cochleate, often foveolate.

TYPE: *Melastoma* L.

Primarily a tropical family of about 200 genera and 4500 species but no genus exists in the New World and the Old World. The monumental publications for this family are those of A. P. de Candolle (Prodr. **3:** 99-202. 1828), C. Naudin (Ann. Sci. Nat. Bot. sér. 3, 1849-53), J. Triana (Trans. Linn. Soc. London **28:** 1-188. 1871), and A. Cogniaux (*in* A. DC., Monogr. Phan. **7:** 1-1256. 1891).

Key to the Genera

1. Ovary superior, free from but enclosed in hypanthium; fruits capsular; ovules and seeds numerous.

2. Shrubs or small trees; leaves 7- to 9-veined from base, 10-20 cm wide, subrotund; upper leaf surface glabrate; seeds oblong .... *Graffenrieda*

2. Compact shrubs or woody herbs; venation acrodromous with 1 or 2 pairs of basal veins or these not evident; leaves pubescent; seeds cochleate.

3. Ovary bearing a ring of bristles apically around style base.

4. Hypanthium bearing stout-stalked, candelabra-branched hairs; flowers in compact clusters; petals white, occasionally pink or purple-pink .... *Pterolepis*

4. Hypanthium lacking candelabra-branched hairs; flowers in panicles or cymes; petals mostly pink-purple, occasionally white .... *Tibouchina*

3. Ovary without ring of bristles around style base.

5. Hypanthium glabrous; calyx lobes linear-subulate, 2-2.7 mm long; anthers linear-subulate, 2-3 mm long; connective prolonged below anther sacs and with bilobed appendage .... *Nepsera*

5. Hypanthium hispid with gland-tipped hairs; calyx lobes triangular, 0.3 mm long; anthers oblong, 0.6 mm long; connective without basal appendage .... *Aciotis*

1. Ovary inferior or slightly so; fruit baccate.

6. Leaves pinnate-veined, lacking basal or suprabasal, acrodromous venation; connective stout, with conspicuous gland; seeds 1 or 2 .... *Mouriri*

6. Leaves with acrodromous venation, of 1 or 2 basal or supra-basal pairs; connective lacking conspicuous gland; seeds small, numerous.

7. Flowers > 3 cm dia., subtended by broad, foliaceous, persistent bracts; epiphyte or scrambling .... *Blakea*

7. Flowers < 2 cm dia., bracts not prominent but if so, then caducous.

8. Stems woody, trees; flowers borne on old wood.

9. Flowers borne on old wood in axils of leaves; sepals 1.5-2.5 cm wide at least in fruit; stamens 12 or more, anthers broadly oblong or dolabriform .... *Bellucia*

9. Flowers borne at leafless nodes; sepals at most 2 mm wide; stamens 8 to 10, anthers linear to oblong.

10. Inflorescences paniculate, peduncle and pedicels tenuous; petals rose-pink; anthers longitudinally dehiscent; style 2 cm long.. .... *Charianthus nodosus*

10. Flowers borne in subsessile clusters of three; petals white; anthers porose; style 5-13 mm long .... *Henriettea*

8. Stems woody or herbaceous; flowers in terminal or axillary clusters or inflorescences.

11. Calyx calyptriform, closed in bud, circumscissile at anthesis.

12. Stamens twice as many as petals .... *Miconia*

12. Stamens more than twice the number of petals.. *Conostegia*

11. Calyx lobes evident in bud, exposing the petals.

13. Inflorescences lateral; flowers mostly 4-merous... *Clidemia*

13. Inflorescences terminal; flowers 4- to 6-merous.

14. Anthers opening by longitudinal pores; petals tightly enveloped at anthesis .... *Charianthus*

14. Anthers opening by apical pores.

15. Mature leaves covered with stellate or stellate-lepidote hairs; calyx constricted above ovary and flaring. . . . . *Tetrazygia*
15. Mature leaves glabrous; calyx tube not constricted above ovary. . . . . *Miconia*

ACIOTIS D. Don

Aciotis D. Don, Mem. Wern. Nat. Hist. Soc. **4:** 283, 300. 1823.

Herbaceous plants, stems quadrangular or terete, often winged, glabrous or pilose. Leaves of a pair subequal; petioles present; blades ovate or lanceolate, venation acrodromous with 1 or 2 pairs of basal veins, membranaceous, pubescent or glabrous. Flowers mostly terminal, in simple or compound cymes, small; hypanthium globose, hispid with gland-tipped hairs; calyx lobes 4, triangular, minute, caducous; petals 4, acute with terminal bristles; stamens 8, subequal, anthers oblong, single-pored, connective without basal appendage; ovary free or nearly so, globose, bilocular, without ring of bristles around style base, style slender. Fruit a capsule, splitting irregularly; seeds numerous, cochleate, minute.

TYPE: *Aciotis discolor* D. Don = *Aciotis purpurascens* (Aublet) Triana.

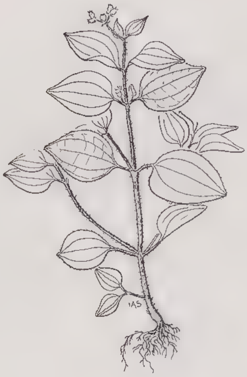
A genus of 30 species of tropical America.

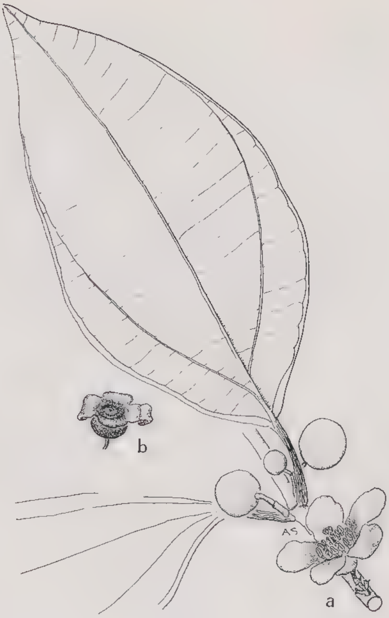
NOTES: The type, *Aciotis discolor* D. Don (a taxonomic synonym of *A. purpurascens* (Aublet) Triana), was based on a collection of Alexander Anderson attributed to St. Vincent. Anderson obtained this plant from the "swamps of Guiana" in 1791 and grew it at the St. Vincent Botanic Garden. The illustration and description in his unpublished Hortus was labeled "Rhexia colorata." Anderson also obtained, from swamps in Trinidad, a plant he called "Rhexia palustris," which appears to be *Comolia veronicifolia* Benth.

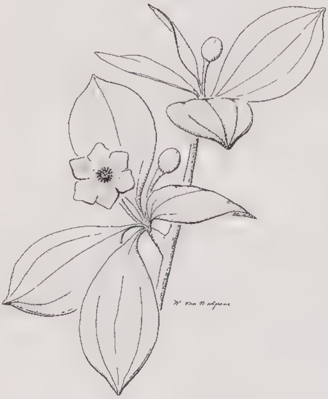
Aciotis aequatorialis Cogn. *in* C. Martius., Fl. Bras. **14**(3): 464, *t. 105, fig. II.* 1885. FIGURE 186.

Type: Not selected.
Syn.: *Aciotis martinicensis* sensu Urban, Symb. Antill. **5:** 446, 447. 1908.
Aciotis discolor D. Don var. *martinicensis* sensu Stehlé, Bull. Soc. Bot. France **92:** 265. 1945.

Herb to 30 cm tall; stems sharply tetragonal or slightly winged, with petioles and leaves loosely strigose pubescent with rough-surfaced hairs, often with glandular tips. Leaves with petioles 1.5-3.5 cm long; blades ovate, 2-4 × 1.5-3.5 cm, base truncate to cordate, apex acute, margin sharply serrate, each tooth hair-tipped. Inflorescences simple or compound, to 4 cm long, axes glandular pubescent, central flower of cyme sessile, lateral branches often scorpioid. Flowers with hypanthium 2 mm long, sparsely glandular pubescent; calyx lobes acute, 0.3 mm long, hair-tipped; petals oblong, 3-4 mm long, obtuse and tipped with glandular hairs, white; stamens with purple anthers 0.6 mm long; style 3 mm long. Capsules 3 mm in diameter.







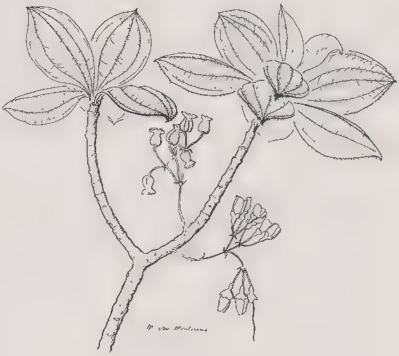


FIGURE 186 (upper left). *Aciotis aequatorialis*, × 0.3. FIGURE 187 (upper right). *Bellucia grossularioides*: a, flowering branch, × 0.3; b, fruit, × 0.3. FIGURE 188 (lower left). *Blakea pulverulenta*, × 0.3. FIGURE 189 (lower right). *Charianthus nodosus*, × 0.3.

GENERAL DISTRIBUTION: Trinidad, Venezuela, Brazil, Peru, Ecuador, Colombia.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, Grenada!.

BELLUCIA Necker ex Raf.

Bellucia Raf., Sylva Tellur. 92. 1838, nom. cons.

Trees or shrubs, branches terete or compressed, glabrous. Leaves large, petiolate; blades entire, acrodromous with 1 or 2 pairs of veins, the upper suprabasal, coriaceous, drying black. Inflorescences axillary panicles, or flowers solitary, borne on old wood. Flowers < 2 cm in diameter, pedicellate; bracts wanting; calyx turbinate or hemispherical, circumscissile, irregularly lacerate, glabrous; petals obovate to oblong, fleshy, white to rose, glabrous; stamens twice as many as petals, equal, filaments short, thick, glabrous, anthers coherent, dolabriform or short-oblong, apex narrowly biporose, connective thick, not produced below, lacking gland; ovary deep in calyx, glabrous, locules 10 to 15, style thick, columniform, stigma entire or lobed. Berry fleshy, 10- to 15-locular; seeds numerous, small.

TYPE: *Bellucia nervosa* Raf., nom. illegit. = *Bellucia grossularioides* (L.) Triana.

A genus of 7 species of tropical America.

Bellucia grossularioides (L.) Triana, Trans. Linn. Soc. London **28:** 141. 1871.
FIGURE 187.

Basionym: *Melastoma grossularioides* L., Sp. Pl. **1:** 390. 1753.
Type: Surinam, *Bartsch s.n.*
Syn.: *Blakea quinquenervia* Aublet, Hist. Pl. Guiane **1:** 525, *t. 210.* 1775. (Type: Guiana, *Aublet s.n.* (BM!, LINN-Sm. 853.1.).)
Bellucia aubletii Naudin, Ann. Sci. Nat. Bot. sér. 3, **16:** 102. 1851, nom. illegit. for *Bellucia quinquenervia* Aublet.

Trees to 10(-30) m tall. Leaves with petioles 1.5-4 cm long; blades ovate, elliptic, or oblong-ovate, 20-30 × 10-20 cm, base rounded to cuneate, apex acute, abruptly acute, or rounded, 5-plinerved, glabrous or puberulent. Flowers mostly 7- or 8-merous; pedicels 1-2.5 cm long; calyx lobes 2 to 5, irregularly ovate-rounded, 1-1.5 × 1.5-2.5 cm long; petals oblong, 17-20 × 15 mm, white or pink-flushed; stamens 14 to 16, anthers 5-6 mm long; styles thick, 15-17 mm long. Berry yellow, disc prominent.

GENERAL DISTRIBUTION: Mexico to Panama, Colombia and Venezuela to Brazil, and Bolivia.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!.

COMMON NAME: Néflier du Mexique.

NOTE: According to Duss this species was introduced by L'Herminier to the French islands, where it is now naturalized.

BLAKEA P. Browne

Blakea P. Browne, Civ. Nat. Hist. Jamaica 323. 1756.

Shrubs, often climbing or appearing as massive epiphytes. Leaves petiolate; blades entire, venation acrodromous with 3 to 5 basal nerves, leathery. Flowers axillary, solitary, > 3 cm in diameter; bracts opposite, broad, foliaceous, persistent, enveloping calyx; calyx campanulate or hemispherical, lobes 6; petals 6, rose-purple to white, glabrous; stamens 12, equal, anthers often cohering in a ring, apically biporate, connective thick, prolonged into spur, lacking gland; ovary inferior or slightly so, 4- to 6-locular, styles slender to thick, stigma truncate. Fruits baccate; seeds numerous, ovoid to pyramidal, small.

TYPE: *Blakea trinervia* L.

A genus of 85 species from the Antilles to South America.

Blakea pulverulenta M. Vahl, Symb. Bot. **3:** 61. 1794. FIGURE 188.

Type: "America meridionali" Forsyth, but probably Anderson.
Syn.: *Blakea laurifolia* Naudin, Ann. Sci. Nat. Bot. sér. 3, **18:** 142. 1852. (Type: Guadeloupe, *Beaupertuis s.n.* (holotype, P?).)

Shrub or small tree or massive epiphyte, stems glabrous. Leaves with petioles 1-2 cm long; blades obovate, oblong, or elliptic, 4.5-11 × 2-6 cm, base cuneate, apex abruptly short-acuminate, 5-nerved, the inner pair more conspicuous, webbed domatia basally adjacent to midrib, black-dotted, glabrous. Flowering pedicel 2-3 cm long, scurfy; bracts elliptic to obovate, 1-1.8 cm long, apex obtuse or rounded; calyx broadly campanulate, 6 mm long, 10 mm in diameter, lobes 5 or 6, less than 1 mm long; petals oblong, 1.5 × 1.2 cm, usually equal-sided, rose-purple to pink or white; stamens with filaments strap-shaped, to 5 mm long, anthers with spur 1.5 mm long, thick; styles 12-18 mm long. Berries globose, 1.5 cm in diameter, crimson.

GENERAL DISTRIBUTION: Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!.

COMMON NAMES: Goyavier rose, aralie rose.

CHARIANTHUS D. Don

Charianthus D. Don, Mem. Wern. Nat. Hist. Soc. **4:** 327. 1823.

Shrubs or small trees, stems commonly quadrangular and often nodose. Leaves petiolate; blades entire or undulate and crenulate, strongly 3- to 5-nerved with basal or suprabasal, acrodromous venation, membranous to coriaceous, glabrous to setose and often lepidote below. Inflorescences terminal, rarely axillary, cauliflorous panicles or corymbose cymes. Flowers < 2 cm in diameter; calyx tube campanulate or urceolate, 4-lobed, lobes broad, erose or bluntly toothed, spreading, often caducous in fruit; petals 4, free, erect but usually forming campanulate corolla, bright red or occasionally yellow or cream-colored; stamens in 2 equal series, often longer than petals, filaments flattened, red or yellow, anthers longitudinally dehiscent or rarely poricidal, connective narrow, not elongated or appendaged, eglandular; ovary fused to hypanthium, 2- to 4-locular, glabrous or lepidote, style filiform, stigma capitate. Fruits baccate, subglobose, slightly stalked at base, constricted below flaring calyx, red turning black; seeds numerous, small, pyramidal, white.

LECTOTYPE: *Charianthus purpureus* D. Don.

A genus of five species, one in Jamaica and four in the Lesser Antilles. For a monographic treatment see W. H. Hodge, Contr. Gray Herb. **135:** 115-133. 1941. 135:

NOTES: Although frequently collected because of its showy flowers the genus presents many unsolved problems and the process of speciation may indeed be active. Previous workers have chosen to describe as varieties differences in populations in the Lesser Antilles. The plants vary in stature with altitude. Leaf size and shape vary on single plants with the vigorous shoots having larger leaves than those of the flowering shoots. Pubescence is also a variable character and is abundant on some plants, often those of high altitude, and decreasing in abundance or localized on stems, petioles, or peduncles of others. Although most of the flowers are bright pink or red in color, some groups of plants may have yellow or cream flowers or flowers with petals reddish in the middle and cream to buff on the margins. The petals are free but never spread and are represented in a campanulate form. Hummingbirds are common visitors to the flowers. Floral development is not known from field studies, but the flowers appear to be protandrous with the style elongating after anthesis of the stamens or after the petals fall. The calyx persists in fruit in some plants and is caducous in others. The fleshy fruits may be bright red but apparently all become dark purple in age; they stain skin and clothing indelibly and the juice is reported to be used as ink.

KEY TO THE SPECIES

1. Inflorescences borne on old wood or at leafless nodes, few-flowered; peduncles thin, bracteate . . . . *C. nodosus*
1. Inflorescences terminal or axillary, many-flowered; peduncles stout.
   2. Twigs, petioles, and leaves essentially glabrous, lacking setae.
      3. Flowers large, petals 12-18 mm long, filaments 15-18 mm long, style 15-30 mm long . . . . *C. alpinus*
      3. Flowers small, petals 5-7 mm long, filaments 5-8 mm long, style ca. 10 mm long . . . . *C. corymbosus*
   2. Twigs, petioles, and leaves densely strigose or the hairs reduced to a nodal ring or lines on the petioles . . . . *C. purpureus*

Charianthus alpinus (Sw.) R. Howard, J. Arnold Arbor. **53:** 401. 1972.

Basionym: *Melastoma alpina* Sw., Prodr. 71. 1788; Fl. Ind. Occid. **2:** 800. 1798.
Type: Guadeloupe, *de Ponthieu s.n.* (holotype, BM, photo, A!).
Syn.: *Melastoma coccinea* Rich., Actes Soc. Hist. Nat. Paris **1:** 109. 1792. (Type: Guadeloupe, *Richard s.n.* (holotype, P!).)
Charianthus coccineus (Rich.) D. Don, Mem. Wern. Nat. Hist. Soc. **4:** 328. 1823.
Charianthus tinifolius D. Don, Mem. Wern. Nat. Hist. Soc. **4:** 329. 1823. (Type: Ind. Occid., *Anderson s.n.* (herb. Lambert, probably at G, n.v.).)
Melastoma punctulatum Sw. ex Wikström, Köngl. Vetensk. Akad. Handl. **1827:** 65. 1827. (Type: Guadeloupe, *Forsström s.n.* (S!).)
Charianthus coccineus (Rich.) D. Don var. *parvifolia* Cogn. *in* A. DC., Monogr. Phan. **7:** 1190. 1891. (Type: St. Vincent, *Eggers 6916.*)
Melastoma pulverulentum Cogn. *in* A. DC., Monogr. Phan. **7:** 359. 1891, sphalma ex Urban.
Charianthus coriaceus DC. ex Duss, Fl. Phan. Antill. Franç. 285. 1897, sphalma? (Type: Guadeloupe, *Duss 2229.*)
Charianthus coccineus (Rich.) D. Don var. *typicus* Hodge, Contr. Gray Herb. **135:** 121. 1941.

Shrub to 5 m tall, twigs stout, terete, glabrous. Leaves with petioles 0.5-3 cm long, scurfy; blades ovate-elliptic to elliptic-lanceolate, 5-11 × 3-6 cm, base subacute to broadly rounded, apex short-acuminate, margin entire, coriaceous, the youngest brown-lepidote. Inflorescences terminal or axillary, loosely-corymbose or paniculate, 5-7 cm long, many-flowered. Flowers on pedicels < 1 cm long; calyx lobes 1-2 mm long, blunt; petals oblong-ovate, 12-18 mm long, red; stamens long-exserted, 15-18 mm long, red; style 1.5-3 cm long. Fruits subglobose, 4-7 mm in diameter, black.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Bois cendre, fuschia montagne.

NOTES: *Eggers 6916* and *6916b*, from St. Vincent, are mixed collections, part described as var. *parvifolia* by Cogniaux and part incorrectly attributed to Santo Domingo.

Charianthus corymbosus (Rich.) Cogn. *in* A. DC., Monogr. Phan. **7:** 714. 1891.

Basionym: *Melastoma corymbosa* Rich., Actes Soc. Hist. Nat. Paris **1:** 109. 1792.
Type: Guadeloupe, *Richard s.n.* (holotype, P!).
Syn.: *Melastoma corymbosa* M. Vahl, Eclog. Amer. **3:** 25. 1807. (Type: Martinique, *Rohr 168* (holotype, C!. IDC 2201. 46: II. 7, III. 1, photo!).)
Charianthus glaberrimus DC., Prodr. **3:** 196. 1828, nom. illegit.
Melastoma martinicensis C. Presl, Isis (Oken) **21:** 272. 1828, nom. nud.
Charianthus glaberrimus Griseb., Fl. Brit. W. Indian Is. 264. 1860.
Charianthus longifolius Cogn. *in* A. DC., Monogr. Phan. **7:** 715. 1891. (Type: Dominica, *Eggers 654.*)

Charianthus corymbosus (Rich.) Cogn. var. *diffusus* Cogn. ex Duss, Fl. Phan. Antill. Franç. 286. 1897, nom. nud.
Charianthus corymbosus (Rich.) Cogn. var. *glaberrimus* Duss, Fl. Phan. Antill. Franç. 286. 1897.
Charianthus corymbosus (Rich.) Cogn. var. *grandiflorus* Cogn. ex Duss, Fl. Phan. Antill. Franç. 286. 1897, nom. nud.
Charianthus corymbosus (Rich.) Cogn. var. *latifolius* Hodge, Contr. Gray Herb. **135:** 125. 1941. (Type: *Duss 2250* (holotype, GH!; isotype, NY).)
Charianthus corymbosus (Rich.) Cogn. var. *longifolius* (Cogn.) Hodge, Contr. Gray Herb. **135:** 125. 1941.
Charianthus corymbosus (Rich.) Cogn. var. *typicus* Hodge, Contr. Gray Herb. **135:** 124. 1941.

Shrub or small tree to 10 m tall, twigs glabrous. Leaves with petioles 2-7 cm long, glabrous; blades lanceolate to broadly ovate-elliptic, 8-17 × 3-9 cm, base attenuate to obtuse, apex abruptly short-acuminate or gradually long-acuminate or attenuate, margin entire, membranous to subcoriaceous, glabrous or occasionally scaly. Inflorescences terminal or terminal and axillary, < 10 cm long, many-flowered. Flowers on pedicels 5-10 mm long; calyx 1-2 mm long; petals ovate, 5-7 mm long, pink to red or orange to yellow or red in middle with buff margins; stamens 5-8 mm long; style 10 mm long. Fruits globose, 4-7 mm in diameter, black.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!.

COMMON NAMES: Cré-cré rouge cré-cré noir.

NOTES: Many specimens from Dominica seem to represent a distinct population recognized by Hodge as var. *longifolius*, with long-attenuate leaf apices and cuneate bases. These tend to merge with the smaller-leafed plants Hodge called var. *typicus*. On both Dominica and adjacent islands intermediates can be found. A population on Guadeloupe has clear yellow or cream-colored flowers but the plants occur mixed with some having red petals.

Charianthus nodosus (Desr.) Triana, Trans. Linn. Soc. London **28:** 99. 1871. FIGURE 189.

Basionym: *Melastoma nodosa* Desr. *in* Lam., Encycl. **4:** 55. 1797.
Type: "*Surian 93*" = *Leblond 93* from "French Guiana," but probably instead from Martinique (holotype, P, n.v.).
Syn.: *Melastoma crinita* M. Vahl, Eclog. Amer. **3:** 28. 1807. (Type: Martinique, no collector cited.)
Melastoma aculeatum C. Presl, Isis (Oken) **21:** 272. 1828, nom. nud.
Charianthus nodosus (Desr.) Triana var. *crinitus* (Naudin) Duss, Fl. Phan. Antill. Franç. 286. 1897, as to description only.
Charianthus nodosus (Desr.) Triana forma *crinitus* (M. Vahl) Hodge, Contr. Gray Herb. **135:** 132. 1941.

Shrub < 2 m tall, branches thick, tortuous, nodose and terete, young twigs villose to rusty setose or glabrous. Leaves clustered at ends of branches; petioles 8-10 mm long; blades obovate or suborbicular or elliptic, 3-7 × 2-5.5

cm, base rounded to subcordate, apex obtuse or rounded, margin setose with apically directed hairs, coriaceous, punctate, glabrous above, lighter below, occasionally densely setulose on veins below. Inflorescences borne on older stems well below leaves, few-flowered; peduncles < 3 cm long, thin, glabrous or setulose; bracts conspicuous, linear, < 3 mm long, 1 mm wide. Flowers on pedicels 6-8 mm long; sepals flaring, 2 mm long; petals oblong, 12-14 mm long, margin erose, pink to red; style 2-2.5 cm long. Fruits globular, 4 mm in diameter, rose-red to deep red or purple.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Martinique!.

COMMON NAMES: Fuchsia-montagne, crécré rouge.

NOTES: Although Triana (1871) attributed this species to St. Kitts, Montserrat, Guadeloupe, Trinidad, and British Guiana, no valid supporting specimens have been seen. We conclude, as did Hodge and Fournet, that the taxon is limited to the mountains of Martinique. Plants are reported to occur in montane thickets and specimens are often covered with moss and liverworts. Branches show little development of the internodal areas and some appear nearly moniliform.

When Duss made the combination *Charianthus nodusus* var. *crinitus* he cited Naudin as the source of the basionym. However, Naudin's *Charianthus crinitus* is clearly a synonym of *Charianthus purpureus* D. Don, whereas the description provided by Duss for var. *crinitus* agrees with *Charianthus nodosus.*

Charianthus purpureus D. Don, Mem. Wern. Nat. Hist. Soc. **4:** 329. 1823, nom. nov. for *Melastoma coccinea* M. Vahl.

Type: Montserrat, *Ryan s.n.* (holotype, C!; IDC 2201. 46: II. 5, photo!.)

Syn.: *Melastoma coccinea* M. Vahl, Eclog. Amer. **1:** 48. 1797, non Rich. (1792).

Melastoma dodandiana Ham., Prodr. Pl. Ind. Occid. 37. 1825. (Type: St. Kitts, Nevis, specimens not located.)

Charianthus ciliatus DC., Prodr. **3:** 197. 1828. (Type: "*Sieber, Fl. Trin. 279,*" but probably from Martinique (holotype, G-DC!; IDC 2562. 516: III. 3, photo!).)

Charianthus crinitus Naudin, Ann. Sci. Nat. Bot. sér. 3, **18:** 112. 1852. (Type: without locality, Herb. Bonpland.)

Charianthus purpureus D. Don var. *brevisetosus* Hodge, Contr. Gray Herb. **135:** 129. 1941. (Type: Grenada, *Eggers 6221* (holotype, A!).)

Charianthus purpureus D. Don var. *crinitus* (Naudin) Hodge, Contr. Gray. Herb. **135:** 129. 1941.

Charianthus purpureus D. Don var. *rugosus* Hodge, Contr. Gray Herb. **135:** 130. 1941. (Type: Dominica, *W. H. & B. T. Hodge 1421* (holotype, GH!; isotype, NY).)

Charianthus purpureus D. Don var. *typicus* Hodge, Contr. Gray Herb. **135:** 129. 1941.

Shrub 1-10 m tall, twigs tetragonal, youngest often densely or lightly covered with brown or straw-colored, stiff hairs, or glabrate except for nodal ring of setose hairs. Leaves with petioles 1-5(-8) cm long, sparingly setose to glabrate; blades broadly ovate to ovate-elliptical or subrotund, 7-17 × 11-16 cm, base round to subcordate, apex short-cuspidate or abruptly bluntly acuminate, margin entire or undulate-crenulate and setose, at times strongly enrolled, coriaceous, glabrate above, setulose below on veins to completely glabrate. Inflorescences terminal or axillary, corymbose and cymose, 7-10 cm long, many-flowered. Flowers on pedicels 2-4 mm long; calyx lobes 1-2 mm long; petals ovate, 7-10 × 6-7 mm, bright red, crimson-purple, or yellow; stamens 10-12 mm long, barely exserted; style 1.5-2.5 cm long. Fruits subglobose, 5-7 mm in diameter, turning black at maturity.

General distribution: Endemic to Lesser Antilles.

Distribution in Lesser Antilles: Saba!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, Grenada!.

Common names: Wassard, bois cendre.

Notes: The varieties Hodge recognized may be distinctive or intergrade with others. His var. *rugosus* from the summit of Morne Trois Pitons on Dominica is an extreme form with rugose or bullate leaves, but at lower elevations this intergrades with material he called var. *brevisetosus*.

Populations of this species on Grenada may have flowers yellow or cream, or these are described as pink in bud with yellow margins becoming all yellow when mature.

Triana (Trans. Linn. Soc. London **28:** 99. 1871) referred *Melastoma dodandiana* Ham. to *Charianthus nodosus*, a species now considered to be restricted to the slopes of Mt. Pelée. The St. Kitts material of *M. dodandiana*, although not seen, seems better placed here.

CLIDEMIA D. Don

Clidemia D. Don, Mem. Wern. Nat. Hist. Soc. **4:** 284, 306. 1823.

Shrubs, rarely small trees, mostly hirsute or villose. Leaves of a pair subequal, petiolate; blades mostly basal acrodromous, 3- to 7-nerved. Inflorescences axillary panicles or fascicles, bracteate. Flowers < 2 cm in diameter, mostly 4-merous; hypanthium and calyx tube campanulate to cylindrical or urceolate, with conspicuous outer teeth exceeding inner smaller sepals; petals minute, obtuse or retuse, white; stamens isomorphic, twice as many as petals, anthers linear, opening by single pore near apex, connective occasionally minutely prolonged at base, simple or rarely gibbose and short- spurred at base, eglandular; ovary inferior, 3- to 5-celled, style short, stigma minute, punctiform. Berries globose to ellipsoidal, many-seeded, calyx teeth persistent; seeds ovoid, shiny.

Type: Not designated.

A genus of 165 species of tropical America.

Notes: Cogniaux (1891) cited several collections from the Lesser Antilles that are indicated in this treatment as being from plants introduced by Alexander Anderson and cultivated in the St. Vincent Botanic Garden, with specimens by him or Guilding. A collection by Wilson of *C. capillaris* credited to Dominica is probably from Jamaica instead. Domin (Acta Bot. Bohem. **9:** 43. 1930) renamed this *C. insularis* Domin. *Clidemia novemnervia*, cited as "ins. Antillanis (Anderson)," is not represented among the Guiana collections of Anderson we have seen and is not otherwise known from our area.

KEY TO THE SPECIES

1. Flowers 5-parted; leaves cordate at base, veins basal . . . . *C. hirta*
1. Flowers 4-parted; veins basal or suprabasal.
    2. Leaves 10 cm broad, base rounded to slightly cordate.
        3. Plants copiously hirsute . . . . *C. umbrosa*
        3. Plants appressed setose . . . . *C. vincentina*
    2. Leaves less than 10 cm broad.
        4. Flowers seemingly verticillate in one or two whorls, peduncles longer than the petioles . . . . *C. guadelupensis*
        4. Inflorescence shorter than the petioles or the lower sessile . . . *C. rubra*

Clidemia guadalupensis (DC.) Griseb., Abh. Königl. Ges. Wiss. Göttingen **7:** 218. 1857; Syst. Veg. Karaiben 70. 1857. FIGURE 190.

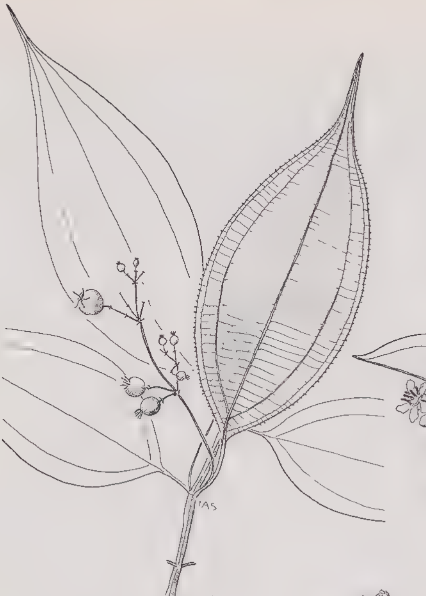
Basionym: *Sagraea guadalupensis* DC., Prodr. **3:** 170. 1828.
Type: Guadeloupe, *Bertero s.n.* (holotype, G-DC; IDC 2562. 510: I. 4, photo!).
Syn.: *Melastoma verticillata* M. Vahl, Eclog. Amer. **1:** 47. 1797, non Miller (1768). (Type: "Caribaeis, *Forseith*" (holotype, C!).)
Clidemia verticillata DC. Prod. **3:** 160. 1828.
Sagraea tetragona DC., Prodr. **3:** 171. 1828. (Type: "Dominicae," no collector cited (holotype, G-DC; IDC 2562. 510: II. 3, photo!).)
Clidemia guadalupensis (DC.) Griseb. var. *genuina* Stehlé & Quentin, Fl. Guadeloupe **2**(3): 78. 1949.
Clidemia guadalupensis (DC.) Griseb. var. *verticillata* (DC.) Stehlé & Quentin, Fl. Guadeloupe **2**(3): 78. 1949.
Clidemia tetragona (DC.) Fournet, Fl. Illust. Phan. Guad. Mart. 912. 1978, nom. invalid.

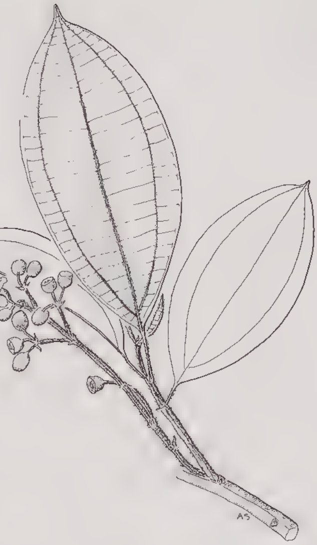
Shrubs < 5 m tall, young branches furfuraceous to minutely setaceous. Leaves with petioles 1-3 cm long; blades ovate to lanceolate-ovate, 12-18 × 4.5-8 cm, base rounded, apex acuminate, margin minutely crenate and ciliate, veins suprabasal, membranaceous. Inflorescences axillary or occasionally borne below leaves, paniculate, or flowering branches reduced to 2 cymes of 3 flowers each, seemingly verticillate, on peduncles < 8 cm long. Flowers with hypanthium campanulate, 2 mm long; calyx lobes 4, < 1 mm long, exterior sepals < 2.5 mm long, terete, setaceous; petals round, < 2 mm long; styles < 3 mm long. Fruits globose, 4 mm in diameter, setose.

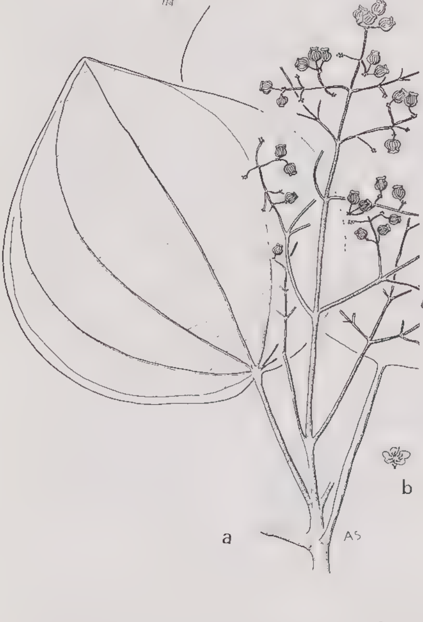
GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!.

COMMON NAME: Crécré montagne.







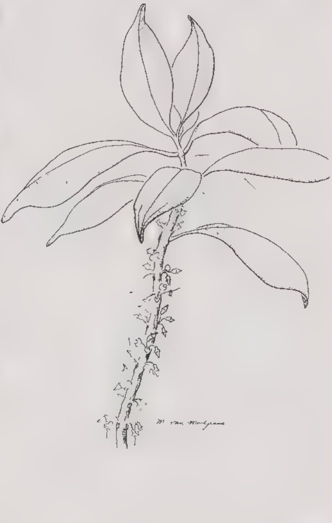


FIGURE 190 (upper left). *Clidemia guadalupensis,* × 0.35. FIGURE 191 (upper right). *Conostegia icosandra,* × 0.35. FIGURE 192 (lower left). *Graffenrieda latifolia*: a, fruiting branch, × 0.35; b, flower, × 0.35. FIGURE 193 (lower right). *Henriettea lateriflora,* × 0.35.

NOTES: Authors from de Candolle to Fournet have distinguished *C. guadalupensis* and *C. verticillata* on the basis of glabrous vs. pubescent stems, respectively. Examination of the types revealed differences in degree only and the species should be combined. *Melastoma verticillata* is a later homonym of a Miller name that has been overlooked. Fournet proposed the combination *C. tetragona* with *M. verticillata* M. Vahl as a synonym. Fournet failed to give a reference and his combination is invalid under Art. 33.2 of the ICBN.

Clidemia hirta (L.) D. Don, Mem. Wern. Nat. Hist. Soc. **4:** 9. 1823.

Basionym: *Melastoma hirta* L., Sp. Pl. **1:** 390. 1753.
Lectotype: Jamaica, *P. Browne s.n.* (LINN 559.2); designated herein.
Syn.: *Melastoma elegans* Aublet, Hist. Pl. Guiane **1:** 427, *t. 167.* 1775. (Type: French Guiana, *Aublet s.n.* (BM, LINN-Sm. 782.31).)
Melastoma crenata M. Vahl, Eclog. Amer. **1:** 41. 1797; **3:** 21. 1807. (Type: St. Kitts, *Ryan s.n.* (holotype, C; IDC 2201. 46: III. 3, photo!).)
Clidemia elegans (Aublet) D. Don, Mem. Wern. Nat. Hist. Soc. **4:** 309. 1832.
Clidemia hirta (L.) D. Don var. *elegans* (Aublet) Griseb., Fl. Brit. W. Indian Is. 247. 1860.

Shrub 1-1.5 m tall, branches spreading, all parts hirsute with long spreading, brownish hairs. Leaves of a pair sometimes unequal; petioles < 3 cm long; blades ovate to broadly ovate, 5-15 × 5-8 cm, base subcordate or rounded, apex acute or short-acuminate, margin serrulate or entire, basally 5- to 7-nerved, membranous. Inflorescences axillary, 3-5 cm long, few- to many-flowered, lax. Flowers 5-parted; hypanthium campanulate, 5 mm long, hirsute; calyx < 0.5 mm long, undulate, slender exterior teeth < 3 mm long; petals oblong-ovate, 8-11 × 4 mm; anthers 4.5 mm long; style 8 mm long. Fruits ellipsoidal, 6-8 mm long, 4-6 mm in diameter, red-purple to black.

GENERAL DISTRIBUTION: Greater Antilles, Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Kak mél, bon bon mél, bonbon bleu.

NOTE: Variety *elegans* is recognized in some treatments, but as Wurdack noted (Fl. Venezuela **7:** 587. 1973) all degrees of intermediates occur between the typical variety and variety *elegans*, which is supposed to be more pubescent with larger leaves, cordate at the base, and manifestly crenate on the margins.

Clidemia rubra (Aublet) C. Martius, Nov. Gen. Sp. Pl. **3:** 152, *t. 281.* 1832.

Basionym: *Melastoma rubra* Aublet, Hist. Pl. Guiane **1:** 416, *t. 161.* 1775.
Type: French Guiana, *Aublet s.n.* (BM!, LINN-Sm. 782.34!).
Syn.: *Melastoma sessiliflora* M. Vahl, Eclog. Amer. **1:** 49. 1797. (Type: "America meridionali," *von Rohr 130* (holotype, C!; IDC 2201. 48: I. 1, photo!).)

Shrub < 1 m tall, branches and leaves densely hirsute to nearly villose. Leaves with petioles usually 0.5-1 cm long; blades oblong-lanceolate to broadly elliptic, 10-13.5 × 5-7 cm, base cuneate to rounded, apex obtuse to short-acuminate, margin minutely fringed or toothed, nerves suprabasal, 2 or 3 pairs, soft pubescent on both surfaces. Flowers sessile in dense axillary clusters, 4-merous; hypanthium cylindric, 3.5-4 mm long; calyx lobes triangular, exterior teeth triangular-subulate; petals oblong, 1.5-3 mm long, 1.5 mm wide; anthers 5 mm long; ovary glabrous or glandular-setose at apex, style 6-8 mm long. Berries globose or ellipsoidal, 1 cm long, 8 mm in diameter, red-purple.

GENERAL DISTRIBUTION: Northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!, Grenada!.

NOTES: The St. Vincent specimen was from a cultivated plant introduced by Alexander Anderson from Guiana. The Grenada collection (*Proctor 16951*, A) is from an established plant collected between Perdmontemps and Windsor Forest and may originally have been introduced from St. Vincent.

Clidemia umbrosa (Sw.) Cogn. *in* A. DC., Monogr. Phan. **7:** 1019. 1891.

Basionym: *Melastoma umbrosa* Sw., Prodr. 72. 1788; Fl. Ind. Occid. **2:** 817. 1798. Lectotype: St. Kitts, *Fahlberg s.n.* (BM; isolectotype, S!).
Syn.: *Melastoma latifolia* Desr. *in* Lam., Encycl. **4:** 31. 1797. (Type: Martinique, *J. Martin s.n.*, (P-JU #14072 & 14073; IDC 6206. 1034: III. 6, 7, photo!).)
Clidemia latifolia (Desr.) DC., Prodr. **3:** 159. 1828.
Staphidium latifolium (DC.) Griseb., Abh. Köngl. Ges. Wiss. Göttingen **7:** 218. 1857; Syst. Veg. Karaiben 70. 1857.

Shrub < 5 m tall, all parts conspicuously hirsute and setaceous. Leaves with petioles 5-15 mm long; blades broadly ovate, rarely lanceolate-ovate, 15-29 × 10-22 cm, base obtuse or cordate, apex acuminate, with 3 pairs of basal veins. Inflorescences axillary panicles, 7-12 cm long, loosely flowered; peduncle and pedicels filiform. Flowers 4-merous with hypanthium campanulate, 1-1.5 mm long; calyx minutely denticulate, teeth < 1 mm long, outer teeth thick, < 1 mm long, setose; petals subrotund, 2 mm in diameter, obtuse; anthers linear, 2 mm long; ovary globose, hirsute, style 4 mm long. Fruits globose, 6-8 mm in diameter, black.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Wild hogwood, crécré-grand-feuille, coeur à boeuf.

Clidemia vincentina Urban, Repert. Spec. Nov. Regni Veg. **14:** 339. 1916.

Type: St. Vincent, *Eggers 6870* (holotype, B, destroyed).
Syn.: *Clidemia swartzii* sensu Griseb., Fl. Brit. W. Indian Is. 248. 1860, pro parte for Guilding collection from St. Vincent.
Clidemia grandifolia sensu Cogn. *in* A. DC., Monogr. Phan. **7:** 1018. 1891, pro parte for Guilding collection from St. Vincent.

Shrub or small tree < 7 m tall, stems densely appressed setose with rigid or curved hairs. Leaves with petioles 9-15 cm long; blades ovate, 10-27 × 7-17 cm, base rounded but slightly protracted into petiole, apex acuminate, margin undulate to minutely crenate, with 2 pairs of basal veins, membranaceous, sparsely setose above, shorter pubescence on veins below. Inflorescences loosely paniculate, 5-12 cm long. Flowers 4-merous with hypanthium narrowly campanulate, 2 mm long, short-hirtellose; calyx lobes semilunar, teeth < 0.3 mm long, exterior teeth setulose, < 1 mm long; petals rounded, 1-2 mm in diameter; anthers 2 mm long; style 4.5 mm long. Berries globose, 3 mm in diameter.

GENERAL DISTRIBUTION: Endemic to St. Vincent.

NOTES: Wurdack (Fl. Venezuela **7:** 611. 1973) suggested that this species is similar to *Clidemia grandifolia* Cogn. and noted that Cogniaux cited a Guilding specimen from St. Vincent as that species. Although Guilding collected specimens from plants Anderson introduced to the St. Vincent Botanic Garden from South America, a limited number of additional specimens from St. Vincent suggests this is a native, distinct, and endemic species and not from an introduced cultivated plant.

CONOSTEGIA D. Don

Conostegia D. Don, Mem. Wern. Nat. Hist. Soc. **4:** 284, 316. 1823.

Shrubs or small trees. Leaves of a pair unequal, petiolate; blades with margin entire or denticulate, acrodromus with 1 or 2 pairs of basal veins, coriaceous, glabrous to tomentose, stellate or furfuraceous. Inflorescences terminal panicles, bracteate. Flowers < 2 cm in diameter, 5- to 10-merous; calyx calyptriform with campanulate tube below and hemispherical to acute apical lid shed at anthesis; petals usually obovate or obcordate, white; stamens isomorphic, 9 to 26, filaments slender, glabrous, anthers linear or oblong, dehiscent through single pore, connective narrow, without prolongation or appendages, eglandular; ovary inferior, multilocular, style glabrous, stigma truncate or peltate, apex recurved in ring around style. Fruits baccate; seeds numerous, small, obovoid and angulate, smooth.

TYPE: Not designated.

A genus of ca. 50 species of southern Mexico, Central America, the West Indies, and northern South America.

KEY TO THE SPECIES

Stems and petioles glabrous to slightly furfuraceous; leaves entire; flower buds long-apiculate . . . . *C. montana*

Stems and petioles densely furfuraceous-tomentose with branched or stellate hairs; leaves entire to undulate-dentate; flower buds globular, rounded at apex . . . . *C. icosandra*

Conostegia icosandra (Wikström) Urban, Repert. Spec. Nov. Regni Veg. **17:** 404. 1921. FIGURE 191.

Basionym: *Melastoma icosandrum* Sw. ex Wikström, Köngl. Vetensk. Acad. Handl. **1827:** 64. 1828.
Lectotype: Guadeloupe, *Forsström s.n.* (S!); designated by Howard & Kellogg, J. Arnold Arbor. **67:** 244. 1986.
Syn.: *Conostegia subhirsuta* DC., Prodr. **3:** 174. 1828. (Syntypes: Cuba, *de la Ossa s.n.* (G-DC; IDC 2562. 511: II. 5, photo!) and Guadeloupe, *Richard s.n.* (P).)

Shrub or small trees to 10 m tall, branches tetragonal, furfuraceous-tomentose. Leaves with petioles 1-3.5 cm long, tomentose; blades elliptic to oblong-elliptic, (6-)9-14(-23) × 3-9(-14) cm, base broadly cuneate to rounded, apex narrowly acuminate, margin entire or undulate-dentate, with simple hairs above and shaggy tomentose, branched hairs below. Panicles < 9 cm long. Flower buds obovoid to subglobose, 7-9 mm long, 6-7 mm in diameter, stellate pubescent to glabrate; calyx with apex convex or rounded; petals 6 to 8, obcordate, 7-8 mm long; stamens 16 to 26, 6-6.5 mm long, anthers 2.5 mm long; ovary 13- to 17-celled, style thick, 3-4 mm long, glabrous, stigma minutely lobed. Berries 8 mm in diameter, apex depressed, marked by persistent funnel-like collar at base of style and surmounted by elevated wall.

GENERAL DISTRIBUTION: Cuba, Haiti, Jamaica, Trinidad, Central America, Colombia, Brazil.

DISTRIBUTION IN LESSER ANTILLES: Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

Conostegia montana (Sw.) D. Don ex DC., Prodr. **3:** 175. 1828.

Basionym: *Melastoma montana* Sw., Prodr. 69. 1788; Fl. Ind. Occid. **2:** 766. 1798.
Type: Jamaica, *Swartz s.n.* (holotype, BM, n.v.).
Syn.: *Melastoma calyptrata* Desr. *in* Lam., Encycl. **4:** 51. Feb. 1797. (Type: Antilles, *Herb. Surian 177* (P?).)
Melastoma calyptrata M. Vahl, Eclog. Amer. **1:** 40. after March 1797 (non Desr.). (Type: Montserrat, *Ryan s.n.* (holotype, C; IDC 2201. 46: II. 3, photo!).)
Conostegia calyptrata (Desr.) D. Don ex DC., Prodr. **3:** 174. 1828.

Shrubs or trees, 3-8 m tall, stems tetragonal, glabrous to slightly furfuraceous. Leaves with petioles 1.5-4.5(-10) cm long; blades oblong to oblong-lanceolate, (6-)9-15(-23) × (2-)4-6(-10.5) cm, base acute, apex obtusely acuminate, margin entire. Panicles < 17 cm long, many-flowered. Flower buds long-apiculate; calyx with apex acute; petals 5 or 6, oblong, 2-3 mm long, apex retuse; stamens 9 to 12(to 15), 5 mm long, anthers cultriform-oblong, 2 mm long; ovary 4- to 6-locular, style 3 mm long, stigma capitellate. Berries globose, 5 mm in diameter, apex truncate, blue-black.

GENERAL DISTRIBUTION: Cuba, Hispaniola, Jamaica, Trinidad, Costa Rica.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!.

COMMON NAMES: Crécré blanc, bois côtelette.

GRAFFENRIEDA DC.

Graffenrieda DC., Prodr. **3:** 105. 1828.

Syn.: *Cycnopodium* Naudin, Ann. Sci. Nat. Bot. sér. 3, **4:** 52. 1845. (Type: *Cycnopodium latifolium* Naudin.)

Shrubs or trees, young parts furfuraceous becoming glabrate. Leaves of a pair subequal, petiolate; blades usually large, ovate to rounded, entire, acrodromous with 3 or 4 pairs of basal veins, glabrate. Inflorescences terminal, paniculate. Flowers small, calyx 4- to 6-toothed; petals 4 or 5, white; stamens 8 to 10, equal or subequal, anthers 1-pored, appendage simple and small; ovary superior, free from but enclosed in hypanthium, style filiform. Fruit a capsule, 2- to 5-valved or more; seeds numerous, oblong or linear, pyramidal, minute.

TYPE: *Graffenrieda rotundifolia* (Bonpl.) DC. (*Rhexia rotundifolia* Bonpl.)

A genus of about 40 species extending from the Greater Antilles and Central America into South America to Bolivia.

Graffenrieda latifolia (Naudin) Triana, Trans. Linn. Soc. London **28:** 71, *pl. 5, fig. 58b.* 1871. FIGURE 192.

Basionym: *Cycnopodium latifolium* Naudin, Ann. Sci. Nat. Bot. sér. 3, **4:** 52, *pl. 2, fig. 2.* 1845.

Type: St. Vincent, *Anderson s.n.* (Herb. Bonpl.)

Syn.: *Miconia catalpifolia* Kränzlin, Vierteljahrsschr. Naturf. Ges. Zürich **76:** 153. 1931. (Type: Dominica, *Eggers 750* (holotype, B, destroyed; isotype, GH!).)

Small tree 3-10 m tall, young parts moderately furfuraceous. Leaves with petioles 5-10 cm long; blades subrotund-ovate, 10-25 × 10-25 cm, base truncate or slightly cordate, apex obtuse, margin entire, basal veins 3 (or 4) pairs, thinly coriaceous, shiny above, glabrate or barbellate in axils of primary veins. Inflorescences many-flowered, divaricate, < 22 cm long. Flowers with hypanthium 2 mm long; calyx abruptly narrowed, 4-lobed, 1-2 mm long; petals obovate, 4-5 × 2-4.5 mm, retuse; filaments 2-2.5 mm long, anthers 2.5-2.8 mm long, dorsal spur acuminate, < 0.7 mm long; ovary bilocular, style 5-9 mm long. Fruits subglobose, 8-ribbed, 4 mm in diameter.

GENERAL DISTRIBUTION: Trinidad and Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!.

COMMON NAMES: Côtelette grand-feuille, crécré grand-feuille, bois bandé.

HENRIETTEA DC.

Henriettea DC., Prodr. **3:** 178. 1828.

Syn.: *Henriettella* Naudin, Ann. Sci. Nat. Bot. sér. 3, **18:** 107. 1852. (Lectotype: *Henriettella seemannii* Naudin.)

Shrubs or trees, glabrous or variously pubescent. Leaves of a pair subequal, margin entire or inconspicuously serrulate, acrodromous with 1 or 2 pairs of basal or suprabasal veins, membranous. Flowers in clusters of 3 at leafless nodes, sessile or short-pedicellate, 4- to 6-parted, < 2 cm in diameter; hypanthium globose or campanulate, glabrous or pubescent inside, usually pubescent outside with stout short hairs with bulbous bases; sepals ovate to triangular, exterior teeth minute; petals ovate to lanceolate, apex acute to obtuse, white; stamens 8 to 10, isomorphic, filaments slender, glabrous, anthers oblong to subulate, commonly opening through one terminal pore, connective simple, rarely prolonged, eglandular; ovary inferior, 4- to 5-celled, style slender, 5-13 mm long, stigma capitellate or not expanded. Fruits baccate, many-seeded.

TYPE: *Henriettea succosa* (Aublet) DC. (*Melastoma succosa* Aublet).

As defined here, a genus of tropical America of perhaps 65 poorly defined species. L. O. Williams (Fieldiana, Bot. **29:** 564. 1963) selected the lectotype of *Henriettella* Naudin and concluded, as had Macbride (Field Mus. Nat. Hist., Bot. Ser. **13**(4, no. 1): 500. 1941), that only one genus was acceptable. This has now been followed by Alain and Adams for the West Indian flora but not by Wurdack for the Flora of Venezuela (1973).

KEY TO THE SPECIES

Leaves 6-8 × 2-3 cm; hypanthium < 1 mm long; petals < 2 mm long .... *H. lateriflora*
Leaves 8-20 × 4-9 cm; hypanthium 4 mm long; petals < 13 mm long .... *H. triflora*

Henriettea lateriflora (M. Vahl) R. Howard & E. Kellogg, J. Arnold Arbor. **67:** 246. 1986. FIGURE 193.

Basionym: *Melastoma lateriflora* M. Vahl, Eclog. Amer. **1:** 48. 1797.
Type: Montserrat, *Ryan 8* (holotype, C!; IDC 2201. 47: II. 1, photo!).
Syn.: *Ossaea lateriflora* (M. Vahl) DC., Prodr. **3:** 169. 1828.
Ossaea sparsiflora DC., Prodr. **3:** 169. 1828. (Type: Guadeloupe, *Richard s.n.* (possibly G-DC; IDC 2562. 509: III. 2, 3, photo!).)
Clidemia sparsiflora (DC.) Griseb., Abh. Königl. Ges. Wiss. Göttingen **7:** 218. 1857; Syst. Veg. Karaiben 70. 1857.
Henriettella lateriflora (M. Vahl) Triana, Trans. Linn. Soc. London **28:** 144. 1871.

Shrub or small tree < 8 m tall, stems and branches appressed short-setose (hairs with broad bases), and sparsely furfuraceous. Leaves with petioles 1.5-2.5 cm long; blades elliptic-lanceolate, 6-8 × 2-3 cm, base acute to cuneate, apex acute to acuminate, margin entire, acrodromous with marginal basal veins and one pair suprabasal, submembranaceous, sparsely setose becoming glabrate above, persistently setose on veins below. Flowers borne on pedicels 1-3 mm long; hypanthium < 1 mm long, glabrous inside; calyx campanulate, bluntly 4-toothed but flaring at maturity, sparsely appressed-setose outside; corolla forming a pointed cap and falling in one unit, petals < 2 mm long; stamens 8, anthers 2 mm long; ovary 4-celled, style 5-6 mm long. Berries globose, 2-3 mm in diameter, turbinate with flaring calyx; seeds numerous, 0.5 mm long, tan with dark elongated hilum.

General distribution: Endemic to Lesser Antilles.

Distribution in Lesser Antilles: Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

Common names: Crécré grand-bois, caca-ravet.

Henriettea triflora (M. Vahl) Alain, Bull. Torrey Bot. Club **92:** 300. 1965.

Basionym: *Melastoma triflora* M. Vahl, Eclog. Amer. **1:** 46. 1797.
Type: "Caribaeis, *Forseith*" (holotype, c!; IDC 2201. 48: I. 7, photo!).
Syn.: *Henriettella triflora* (M. Vahl) Triana, Trans. Linn. Soc. London **28:** 143. 1871.
Henriettella dussii Cogn. *in* Duss, Fl. Phan. Antill. Franç. 277. 1897. (Type: Martinique, *Duss 1180*.)

Shrub or small tree < 8 m tall. Leaves with petioles 1.5-5 cm long; blades broadly lanceolate to ovate-lanceolate, 8-20 × 4-9 cm, base long-acute or cuneate, apex acuminate, margin entire, ciliate, veins 2 or 3 pairs, submembranaceous, sparsely short-setose above, lighter below, with major veins densely hirsute, the rest glabrous. Flowers usually clustered in 3's, subsessile or on pedicels < 2 mm long; hypanthium 4 mm long, cinereo-fulvous, glabrous inside; calyx flaring, 1 mm long, 4-toothed; petals triangular-oblong, 11 × 7 mm, acute; stamens 8, anthers 4; style < 13 mm long. Mature fruits unknown.

General distribution: Puerto Rico, Lesser Antilles.

Distribution in Lesser Antilles: St. Lucia!, St. Vincent!, Grenada!.

Common name: Bois cendre.

MICONIA Ruíz & Pavón

Miconia Ruíz & Pavón, Fl. Peruv. Prodr. 60. 1794, nom. cons.

Shrubs or small to large trees with sympodial branching, occasionally dioecious; branches quadrangular to terete; pubescence various, but frequently appressed stellate-furfuraceous. Leaves petiolate or subsessile; blades lanceolate, elliptic, or ovate, apex short- to long-acuminate, basal or suprabasal acrodromous, ours 3- to 7-nerved. Inflorescence a panicle or thyrse, flowers cymose or secund, bracteate. Flowers 4- or 5-(to 10-)merous, < 2 cm in diameter; hypanthium terete; calyx infundibular to campanulate (rarely calyptrate in bud), teeth inconspicuous; petals white or sometime rose;

anthers various in size, shape, and number of pores, connective eglandular; ovary 2- to 8-celled. Fruits baccate, usually globose; seeds numerous, small.

TYPE: *Miconia triplinervis* Ruíz & Pavón.

A polymorphic genus of about 1000 species throughout tropical America. The genus has been divided into 12 sections on characters of the anther and the calyx, or many of these have been recognized as genera. For a discussion of the origin and nomenclature of species reported in the literature from the Lesser Antilles, see R. A. Howard & E. A. Kellogg, J. Arnold Arbor. **67:** 233-255. 1986. Throughout the area these plants are called crécré or bois côtelette.

KEY TO THE SPECIES

1. Leaf base strongly decurrent on petiole; 5-nerved, outer pair of lateral nerves suprabasal, inner pair joining midrib 5-10 mm above outer....... *M. prasina*

1. Leaf base cuneate, rounded, or cordate, but not decurrent; if 5-nerved, then lateral nerves basal, or inner pair inserted < 5 mm above outer.

 2. Leaf base cordate with auriculate lobes, almost concealing petiole, leaf thus appearing nearly sessile; petioles < 7 mm long.

  3. Largest leaves 7-13 cm long, 3- or 5-nerved.

   4. Leaves 3-nerved; margin plane; Dominica.............. *M. ernstii*

   4. Leaves 5-nerved; margins strongly inrolled; Martinique.. *M. martinicensis*

  3. Largest leaves 19-40 cm long, 5-nerved.............. *M. impetiolaris*

 2. Leaf base cuneate, rounded, or cordate, without auriculate lobes; petioles > 7 mm long.

  5. Inflorescence bracts 6-14 mm long, erect, white, oblong-obovate, cinerescent, enclosing flowers, caducous; leaves tawny-pubescent below; petals 5 or 6.. *M. mirabilis*

  5. Inflorescence bracts mostly < 4 mm long, linear, triangular, or oblanceolate; leaves glabrous or pubescent below; petals 4 or 5.

   6. Leaves 3-nerved.

    7. Leaves densely appressed stellate-pubescent below; flowers 4-merous; margin entire; leaves coriaceous, glossy above...... *M. tetrandra*

    7. Leaves glabrous or with only sparse stellate pubescence on abaxial veins near base of leaf; flowers 5-merous; margin generally crenate; leaves membranaceous........................ *M. cornifolia*

   6. Leaves 5-(or 7-)nerved, although outermost pair often submarginal and weaker.

    8. Inflorescence branches with secund flowers, often cincinnate.

     9. Leaves ciliate-margined; nodes setulose......... *M. racemosa*

     9. Leaves entire- or serrulate-margined; nodes not setulose.

      10. Leaves much darker adaxially, broadly ovate to elliptic, length: width ratio < 2.1; margin entire; endemic to St. Lucia.. *M. secunda*

      10. Leaf surfaces about the same color, ovate to lanceolate, length: width ratio > 2.3; margin serrulate; weedy, widespread .... *M. laevigata*

    8. Inflorescence branches without secund flowers.

11. Leaf margins entire or crenate, but not serrulate; leaf bases cordate or not.
12. Panicle a narrow thyrse, with 2 or 4 branches per node, each branch a pedunculate cyme, the peduncle 6-12 mm long; inflorescence axes and petioles appearing densely furfuraceous to the naked eye .... *M. furfuracea*
12. Panicle open, spreading, much branched, often trichotomous; inflorescence axes and petioles glabrous or closely appressed-stellate, but appearing smooth to the naked eye.
13. Leaf margins strongly inrolled; leaves < 9 cm long .... *M. martinicensis*
13. Leaf margins plane; leaves mostly > 9 cm long.
14. Calyx plus hypanthium 1-1.3 mm long; inner pair of lateral nerves suprabasal .... *M. trichotoma*
14. Calyx plus hypanthium 2.6-4 mm long; inner pair of lateral nerved basal.
15. Leaves ovate to elliptic, but not more than twice as long as broad; abaxial surface and inflorescence axes glabrous .... *M. luciana*
15. Leaves narrowly ovate to elliptic or lanceolate, twice as long as broad; abaxial veins sparsely pubescent or scurfy; inflorescence axes stellate-furfuraceous .... *M. andersonii*
11. Leaf margins serrate to denticulate; leaf bases rounded to cuneate, but not cordate.
16. Upper internodes > 2 cm long; inflorescence bracts minute; stigmata flaring; flowers perfect; anthers > 2 mm long.
17. Flowers sessile, glomerate at ends of panicle branches; basal leaf veins 5; margins bluntly serrate with ciliate hairs .... *M. acinodendron*
17. Flowers pedicellate, not glomerulate at ends of panicle branches; basal leaf veins 3; margins sharply dentate, without ciliate hairs .... *M. striata*
16. Upper internodes much < 2 cm long, often as short as 5 mm; inflorescence bracts exceeding the flowers; stigmata tacklike; flowers unisexual, plants dioecious; anthers < 2 mm long.
18. Branches glabrous; petioles glabrous or sparsely scurfy on adaxial groove, but never setose .... *M. globuliflora* var. *globuliflora*
18. Branches scurfy or setose, at least at nodes; petioles setose or scurfy.
19. Setae on stems in internodes as well as thicker setae at nodes and on petioles; leaf margin often strongly reflexed .... *M. coriacea*
19. Setae restricted to nodes and petioles, not in internodes; leaf margin plane.
20. Petioles glabrous; Nevis, Montserrat, Dominica .... *M. globuliflora* var. *dominicae*
20. Petioles scurfy-setose adaxially, especially near base of blade; Guadeloupe .... *M. globuliflora* var. *vulcanica*

Miconia acinodendron (L.) D. Don *in* Sweet, Hort. Brit., ed. **1:** 159. 1826.

Basionym: *Melastoma acinodendron* L., Sp. Pl. **1:** 389. 1753 (as 'acinodendrum'). Lectotype: Hort. Cliff. 162 (photocopy!); designated by Howard & Kellogg, J. Arnold Arbor. **67:** 235. 1986.

Shrub 2-3 m tall, young branches tetragonal; young branches, leaves, petioles, and inflorescence axes stellate-tomentose, glabrescent. Leaves with petioles adaxially grooved, 8-25 mm long; blades broadly ovate to elliptic, 8.6-17.2 × 4.5-9.4 cm, base cordate, apex narrowly acuminate, margin serrate, ciliate, nerves 5(or 7), basal, surfaces with long setose hairs similar to marginal cilia, and smaller stellate hairs, the stellate ones sparse adaxially, more frequent abaxially and quite dense on veins. Panicles open, pyramidal, 10-26 cm long; axes with long setae and stellate trichomes, and with thick tufts of setae at nodes; bracts lance-linear to lance-ovate, decreasing in length acropetally from 7 to 1.3 mm, sparsely stellate-puberulent, persistent, those subtending flowers often remaining after fruit has fallen. Flowers glomerulate at tips of branches, sessile; calyx valvate, campanulate, 2.1-3 mm long, sparsely stellate-puberulent, teeth 5, sharply triangular, < 0.2 mm long; petals oblanceolate, ca. 3 mm long, white, glabrous; stamens with filaments unequal, 5 ca. 2.5 mm long, 5 ca. 4 mm long, glabrous, anthers linear to arcuate, 2.4-3.6 mm long, uniporate, white, connective broadly lobed at base; style linear, 4.6-7.1 mm long, glabrous, stigma flaring to capitate. Berries 3.4-5.2 mm in diameter, purple.

GENERAL DISTRIBUTION: Trinidad, Colombia, Venezuela, Guianas, northern Brazil.

DISTRIBUTION IN LESSER ANTILLES: Martinique.

NOTE: This species was collected on Martinique in 1820 (*Plée 740*, (P!), and was not recollected until 1980 when Sastre located it at Grand-Rivière, crête de Balata (*Sastre 6929*, P!). The record of this species from St. Thomas on the basis of a Finlay collection is erroneous (Urban, Symb. Antill. **3:** 48. 1902).

Miconia andersonii Fawcett & Rendle, J. Bot. **64:** 104. 1926.

Type: None designated. Cogniaux (*in* A. DC., Monogr. Phan. **7:** 811. 1891) cites *Anderson s.n.* ("Jamaica," but probably actually St. Vincent), *Eggers 6146 p.p.*, *6220b*, and *6704* (St. Vincent, Grenada).

Syn.: *Miconia trinervia* Cogn. *in* A. DC., Monogr. Phan. **7:** 810. 1891, not (Sw.) D. Don (1830).

Miconia caribaea Domin, Preslia **9:** 3. 1930. (Type: St. Vincent, Sandy Bay, 1889, *H. H. & G. W. Smith 820* (holotype, K!).)

Small tree to 7 m tall, young branches quadrangular; young branches, leaves, petioles, and inflorescence axes stellate-furfuraceous. Leaves with petioles 15-42 mm long, glabrescent; blades ovate to elliptic or lanceolate, 11.5-18.5 × 3.5-7.4 cm, base rounded to subcordate, apex acuminate, margin slightly serrulate to entire, nerves 5, basal, 3 prominent, 2 submarginal ones obscure, adaxial surface scurfy at least along veins, glabrescent, substantially darker than abaxial. Inflorescence a much-branched panicle of cymes, to 15 cm long; bracts linear, minute, fugacious; bracts, calyces, and abaxial side of petals more or less densely stellate-pubescent. Terminal flowers sessile, lateral flowers conspicuously articulated; calyx campanulate to infundibular, 2.6-4 mm long, obscurely 5-lobed; petals oblong to oblanceolate, 3-5 mm long, white to pink; stamens with filaments 3 mm long, anthers stout, 1.8-2.8 mm long, uniporate, pink to purple; style 4.7-7.5 mm long, glabrous, stigma flaring. Berries 5 mm in diameter, 10-ribbed.

General distribution: Endemic to southern Lesser Antilles.

Distribution in Lesser Antilles: St. Vincent!, Grenada!.

Common name: Bois cendre.

Miconia coriacea (Sw.) DC., Prodr. **3:** 189. 1828.

Basionym: *Melastoma coriacea* Sw., Prodr. 70. 1788.
Type: "Montserrat," but corrected to Guadeloupe (Fl. Ind. Occid. **2:** 790. 1798), *Swartz s.n.* (holotype, BM, not found; isotype, S!).
Syn.: *Melastoma cymbifolia* Rich. *in* Humb. & Bonpl., Monogr. Melast. 57, *t. 26. 1809.* (Type: Guadeloupe, *Richard s.n.* (holotype, P!).)

Shrub or small tree to 4 m tall, forming thickets, young branches stout, quadrangular, rugose, grayish; internodes often as short as 5 mm, with setae to 2 mm long. Leaves borne at extremities of branches, with petioles 9-25 mm long, setose, the hairs to 2 mm long; blades elliptic to ovate, 7.2-11 × 3.5-5.5 cm, base subcordate, rounded, or cuneate, apex acute, margin reflexed, with numerous incurved teeth, nerves strong, 5 to 7, basal, rigid coriaceous, glabrous (or setose only on abaxial veins). Panicles dense, 7-9 cm long, glabrous; bracts oblanceolate, ca. 4 mm long, caducous. Flowers unisexual (plants dioecious), sessile; calyx urceolate, 2.5-3.1 mm long, lobes 5, suborbiculate with hyaline margins and triangular basal thickenings, 10 fornices inside throat; petals obovate, 1.2-2.5 mm long, white, soon caducous; stamens 10, anthers 1.2-1.4 mm long, flaring to an abruptly truncate, biporate apex; style 3 mm long, stigma exserted, capitate, tacklike. Berries 2.7-3.2 mm in diameter, purple.

General distribution: Endemic to Lesser Antilles.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!.

Common name: Cré cré montagne.

Miconia cornifolia (Desr.) Naudin, Ann. Sci. Nat. Bot. sér. 3, **16:** 126. 1851.

Basionym: *Melastoma cornifolia* Desr. *in* Lam., Encycl. **4:** 51. 1797.
Type: Martinique, *Joseph Martin s.n.* In the general collection at P is a specimen labeled "e martinica no. L61" and in corner of label "Lamk. scrips." We presume that this is the holotype.
Syn.: *Melastoma cinnamomifolia* Jacq., Collectanea **2:** 111, *t. 6, fig. 2.* 1789. (Type: Martinique, loc. cit. *t. 6, fig. 2.*)

Melastoma acuminata Desr. *in* Lam., Encycl. **4:** 54. Feb. 1797, non M. Vahl (Mar 1797). (Type: Guadeloupe, *Badier 56* (holotype, P!).)
Melastoma elongata M. Vahl, Eclog. Amer. **3:** 16. 1807, nom. illegit. for *Melastoma acuminata* Desr.
Melastoma lutescens M. Vahl, Eclog. Amer. **3:** 17. 1807. (Type: Montserrat, *Ryan s.n.* (holotype, C!; IDC 2201. 47: 3, photo!).)
Melastoma picta M. Vahl, Eclog. Amer. **3:** 15. 1807, nom. illegit. for *Melastoma cornifolia* Lam.
Melastoma semicrenata Rich. *in* Humb. & Bonpl., Monogr. Melast. **1:** 69, *t. 31.* 1809. (Type: Guadeloupe, *Richard s.n.* (holotype, P!).)
Melastoma cornifolia Desr. var. *grandifolia* Rich. *in* Humb. & Bonpl. Monogr. Melast. **1:** 94. 1812. (Type: Martinique, *Bonpland s.n.* (holotype, P!).)
Melastoma cornifolia Desr. var. *parvifolia* Rich. *in* Humb. & Bonpl. Monogr. Melast. **1:** 94. 1812. (Type: Martinique, *Bonpland s.n.* (holotype, P!).)
Conostegia cornifolia (Desr.) Ser. ex DC., Prodr. **3:** 175. 1828.
Conostegia lutescens (M. Vahl) Ser. ex DC., Prodr. **3:** 175. 1828.
Conostegia semicrenata (Rich.) Ser. ex DC., Prodr. **3:** 175. 1828.
Miconia semicrenata (Rich.) D. Don *in* Loudon, Hort. Brit. **1:** 174. 1830.
Miconia candolleana Naudin, Ann. Sci. Nat. Bot. sér. 3, **16:** 244. 1851, illegitimate renaming of *Melastoma lutescens* M. Vahl.
Tetrazygia cornifolia (Desr.) Griseb., Fl. Brit. W. Indian Is. 255. 1860.
Tetrazygia semicrenata (Rich.) Griseb., Fl. Brit. W. Indian Is. 255. 1860.
Miconia cinnamomifolia (Jacq.) Triana, Trans. Linn. Soc. London **28:** 101. 1871, not Naudin (1851).
Miconia striata (M. Vahl) Cogn. var. *vincentina* Domin, Preslia **9:** 4. 1930. (Type: St. Vincent, *H. H. & G. W. Smith 724* (holotype, K!).)
Miconia picta Wurd., Phytologia **7:** 235. 1960, based on *Melastoma picta* M. Vahl. (Syntypes: Montserrat, *Ryan 3* (C!; IDC 2201. 47: III. 4, photo!) and *Ryan s.n.* (C!).)

Shrub or small tree to 8 m tall, young branches compressed to quadrangular; young branches, petioles, and inflorescence axes rufous stellate-furfuraceous, glabrescent; stems, leaves, and inflorescences frequently infested with galls. Leaves with petioles 11-45 mm long, those of a pair slightly to markedly unequal; blades ovate, elliptic, oblong, or lanceolate, 8.5-20(-22) × 2.7-7.7 cm, base rounded to cuneate, apex acuminate, margin entire to crenulate, nerves 3 from base or laterals slightly suprabasal, membranaceous, sometimes reddish, glabrous or sparsely stellate on abaxial veins near base of blade. Inflorescence a pyramidal panicle of cymes, 5-11 cm long; axes quadrangular, remaining sparsely stellate; bracts linear, fugacious. Central flower subsessile, laterals on pedicels ca. 5 mm long; calyx campanulate, 2.5-8 mm long, 10-striate, sparsely to densely stellate-pubescent, calyptrate and rupturing unevenly to form a fluted rim, often with calyptra still partially attached, irregularly 2- to 3-lobed; petals 5, broadly oblanceolate, (1.2-)2.5-11 mm long, apex obtuse to rounded, white to rose-tinged, sparsely stellate abaxially; stamens with filaments 3.5-7 mm long, anthers arcuate, 1.6-6 mm long, uniporate, white or rose-streaked; style 5-15(-19) mm long, slender, glabrous to sparsely glandular, stigma papillose, only slightly enlarged. Berries to 6.2 mm in diameter, 10-ribbed, black.

General distribution: Endemic to the Lesser Antilles.

Distribution in Lesser Antilles: Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

Note: This species is superficially similar to *M. laevigata* and *M. striata*, but differs from both in its 3-nerved leaves, larger flowers, and the sparse stellate hairs on the abaxial side of the petals. The flowers are not secund, which further distinguishes it from *M. laevigata*. The calyptrate calyx is diagnostic but not apparent on all specimens.

Miconia ernstii Wurd., Phytologia **11**(6): 385. 1965.

Type: Dominica, on south slope of Morne Macaque (Microtin) on road to Fresh Water Lake, elev. ca. 760 m, *Ernst 1723* (holotype, us!).

Shrub to 5+ m tall, young stems terete; young branches, petioles, and inflorescence axes stellate-furfuraceous. Leaves with petioles 1-2 mm long; blades ovate, elliptic, or obovate, 7-13 × 3.1-5.3 cm, base cordate with auriculate lobes, apex short-acuminate, margin entire, nerves 3, laterals joining midvein just above base, coriaceous, shiny above, glabrous. Inflorescence a cymose panicle with secund flowers, 7-10 cm long; bracts lanceolate, < 1 mm long, stellate-furfuraceous. Flowers with calyx infundibular, 2.1-2.5 mm long, stellate-furfuraceous; petals emarginate, 2-2.2 mm long, white, glabrous; stamens with anthers dimorphic, the larger ones ca. 1 mm long; ovary 3-locular, minutely puberulent, style 3.3 mm long, glabrous, stigma truncate. Berries 2-3 mm in diameter, black.

Distribution in Lesser Antilles: Endemic to Dominica!.

Miconia furfuracea (M. Vahl) Griseb., Fl. Brit. W. Indian Is. 257. 1860.

Basionym: *Melastoma furfuracea* M. Vahl, Eclog. Amer. **3:** 13, *t. 22.* 1807.
Type: "India occidentalis," *Ziegler s.n.* (holotype, c!; IDC 2201. 47: I. 5, photo!).

Shrub or small tree to 15 m tall (more often ca. 3-4 m), sparsely branched, young branches compressed, more or less tetragonal; young branches, leaves, petioles, and inflorescence axes persistently furfuraceous-tomentose. Leaves with petioles 8-40 mm long; blades ovate to obovate, 11.6-35.2 × 5.4-22.7 cm, base rounded to subcordate, apex short-to long-acuminate, margin entire or undulate, nerves 5, the 2 inner laterals suprabasal, intramarginals less prominent, subcoriaceous, adaxially glabrescent and becoming dark shiny, abaxially scurfy on veins, much lighter colored. Inflorescence a narrow thyrse, 6.2-20 cm long, each node with 2 or 4 branches, each branch a pedunculate cyme (except lowermost pair, which is also sometimes thyrsiform); peduncles of lateral cymes 6-12 mm long; bracts linear, 1-2 mm long, furfuraceous, fugacious. Lateral flowers on pedicels 2-3 mm long, those of central flower < 1 mm long; calyx infundibular, 6.5-9 mm long, with 5 triangular lobes, slightly furrowed, stellate-furfuraceous when young, glabrescent; petals oblanceolate, 6-7 mm long, white; stamens with filaments 6-7 mm long, white, puberulent, anthers subulate, curved, 3.4-4.7 mm long, uniporate, purple; ovary 3-locular, style 6.2-10 mm long, glandular-pubescent below, stigma punctate. Berries subcylindrical, 8-10 mm in diameter, 10-ribbed when dry, smooth and lustrous when fresh, red becoming black.

General distribution: Endemic to Lesser Antilles, but see Wurdack (Fl. Venezuela **8:** 341. 1973).

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

Common names: Bois cote, bis cote savanne; bwa kót, bwa kót savan, caca jacques.

Miconia globuliflora (Rich.) Cogn. *in* C. Martius, Fl. Bras. **14**(4): 418. 1888.

Shrub to small tree to 5 m tall, branches more or less quadrangular when young, internodes often only 5 mm long. Leaves ovate to elliptic or oblong, base cuneate to rounded, apex acuminate, margin with cartilaginous incurved dentations, nerves 5, basal, but outer 2 often much less prominent. Inflorescence a thyrsoid panicle, 4-10 cm long, often shorter than leaves; bracts oblanceolate, cucullate, yellowish, early caducous, those immediately below flowers surpassing perianth, lower bracts commensurately larger. Flowers unisexual (plants dioecious); calyx urceolate, glabrous, teeth 5, broadly deltate; petals 5, ovate to orbiculate, white; Stamens with filaments enlarged below, linear above, anthers 0.9-1 mm long, flaring distally, abruptly truncate at 2 large pores, sometimes developed on pistillate flowers but then empty; style not elongating beyond perianth, stigma capitate, tacklike, undeveloped in staminate flowers. Fruits 3.1-5 mm in diameter, dark blue to black.

Note: Richard described *Melastoma globuliflora* on the basis of a Leblond collection that bears a printed label ''Guyane-française-M. Leblond, 1792'' (G-DEL). Cogniaux (*in* A. DC., Monogr. Phan. **7:** 914. 1891) and others have accepted this record, but Wurdack (Phytologia **22:** 411. 1972) has indicated that other collections from South America attributed to this species represent doubtful records. Leblond went to Martinique in 1767 and visited other islands in the West Indies and countries in northern South America. His collections were returned to Europe and reported upon by Richard (*in* Lasègue, Mus. Bot. Delessert 225. 1845). It is possible that the printed label is in error.

In 1830, Schlechtendal and Chamisso (Linnaea **5:** 564. 1830) described *Melastoma* (?) *globuliflorum* from Mexico on the basis of a Schiede & Dieppe collection (photo seen). Naudin described *Miconia globulifera* (Ann. Sci. Nat. Bot. sér. **3**(16): 139. 1851) citing *Melastoma globuliferum* Schldl. & Cham. If by our present rules Naudin was transferring the Schlechtendal and Chamisso species to *Miconia*, he made an error in spelling; however, the Schlectendal and Chamisso name was a later homonym so the Mexican species is properly cited as *Miconia globulifera* Naudin.

For the Antillean material, Cogniaux (*in* C. Martius, Fl. Bras. **14**(4): 418. 1888, and *in* A. DC., Monogr. Phan. **7:** 914. 1891) used the name and reference as *Miconia globuliflora* (Triana) Cogn., but cited in synonymy

Melastoma globuliflora Rich. The name is properly *Miconia globuliflora* (Rich.) Cogn.

Miconia globuliflora var. **dominicae** R. Howard & E. Kellogg, J. Arnold Arbor **67:** 242. 1986.

Type: Dominica, Morne Trois Pitons, rain forests on upper slopes, altitude 763-1400 m, 23 Feb. 1946, *Hodge 1398* (holotype, GH!; isotype, BM!).

Shrub or small tree to 6 m tall, nodes scurfy or with tufts of colleters to 4.5 mm long. Leaves with petioles 10-50 mm long, dark, glabrous; blades 6.5-8 × 3-9 cm, glabrous. Flowers with calyx 1.7-2.5 mm long.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Nevis!, Montserrat!, Dominica!.

Miconia globuliflora (Rich.) Cogn. var. **globuliflora.**

Basionym: *Melastoma globuliflora* Rich., Actes Soc. Nat. Hist. Paris **1:** 109. 1792.
Type: "Guayane-française" (probably actually from Martinique), *Leblond s.n.* (G-DEL). At P! there is a specimen in hb. Rich. labeled *Melastoma globuliflora* "in Martinicae."
Syn.: *Melastoma myricoides* Desr. *in* Lam., Encycl. **4:** 51. 1797. (Type: Martinique, *Surian 733* (holotype, P-JU, n.v.).)
Melastoma thyrsoidea M. Vahl, Eclog. Amer. **3:** 13. 1807, non *Miconia thyrsoidea* (D. Don) Cogn. (1891). (Type: Montserrat, *Ryan 9* (holotype, C!; IDC 2201. 48: I. 5, photo!).)
Miconia myricoides (Desr.) DC., Prodr. **3:** 202. 1828.
Miconia sieberi DC., Prodr. **3:** 189. 1828. (Type: Martinique (recorded as Trinidad), *Sieber 260* (holotype, G-DC; IDC 2562. 515: II. 2, photo!).)

Shrub to 5 m tall with swollen nodes, glabrous throughout (occasionally setose on internodes in St. Lucia plants). Leaves with petioles glabrous to sparsely scurfy in adaxial groove, if sparsely setose, then plants from St. Lucia and petioles 8-31 mm long; blades 4.5-13 × 1.9-5.5(-7) cm. Flowers with calyx 1.4-2 mm long.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Martinique!, St. Lucia!.

COMMON NAMES: Bois cendre, bwa kót.

Miconia globuliflora var. **vulcanica** (Naudin) R. Howard & E. Kellogg, J. Arnold Arbor. **67:** 243. 1986.

Basionym: *Miconia vulcanica* Naudin, Ann. Sci. Nat. Bot. sér. 3, **16:** 213. 1851.
Type: Guadeloupe on La Soufrière, *Funck & Schlim 48*, (holotype, P!, photo, G-DC).
Syn.: *Miconia abortiva* Naudin, Ann. Sci. Nat. Bot. sér. 3, **16:** 232. 1851. (Type: Guadeloupe on La Soufrière, *L'Herminier s.n.* (holotype, P!).)
Cremanium sieberi sensu Griseb., Fl. Brit. W. Indian Is. 262. 1860.

Shrub to 2 m tall, nodes scurfy or with tufts of colleters. Leaves with petioles 8-39 mm long, scurfy-setose adaxially, especially near base of blade;

blades 6.3-14.3 × 3.0-5.4(-6.2) cm, glabrous. Flowers with calyx 1.2-2 mm long.

DISTRIBUTION IN LESSER ANTILLES: Endemic to Guadeloupe.

Miconia impetiolaris (Sw.) D. Don ex DC., Prodr. **3:** 183. 1828.

Basionym: *Melastoma impetiolaris* Sw., Prodr. 70. 1788.
Lectotype: "India occidentali," Swartz s.n. (S!); designated by Howard & Kellogg, J. Arnold Arbor. **67:** 244. 1986.

Shrubs to small trees to 8(-10) m tall, young branches quadrangular; young branches, leaves, petioles, and inflorescence axes rufous stellate-furfuraceous. Leaves with petioles thick, 2-7 mm long, often obscured by cordate base of leaf, persistently pubescent; blades ovate to elliptic or sometimes obovate, 19-33(-40) × 7.1-14.5(-20) cm, base cuneately narrowed to cordate, with auriculate lobes, apex short-acuminate (rarely truncate), margin entire to slightly serrate, nerves 5(or 7), laterals suprabasal, adaxial surface dark green, glossy, glabrous except at petiole-blade junction where it is rufous-stellate, abaxial surface tan with very regular array of rufous-stellate trichomes, denser on veins. Panicles pyramidal, 13-25 cm long; bracts linear, ca. 1 mm long, fugacious. Flowers sessile or nearly so, glomerulate; calyx infundibular, becoming urceolate, 3-3.5 mm long, 5-lobed, stellate pubescence persisting in fruit; petals obovate, 2.2-2.5 mm long, apex retuse, white; stamens with filaments dimorphic, 5 ca. 2.3 mm long, 5 ca. 2.8 mm long, anthers linear, 2.6-3.2 mm long, base of connective auriculate; ovary 3-locular, style 3.2-5 mm long, glabrous, stigma punctate. Berries 4.5-7 mm in diameter, 10-ribbed, red becoming purple.

GENERAL DISTRIBUTION: Central America, South America, West Indies.

DISTRIBUTION IN LESSER ANTILLES: St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!.

Miconia laevigata (L.) D. Don *in* Sweet, Hort. Brit. 159. 1826.

Basionym: *Melastoma laevigatum* L., Syst. Nat. ed. 10, **2:** 1022. 1759.
Lectotype: LINN 559.10.
Syn.: *Melastoma pyramidalis* Desr. *in* Lam., Encycl. **4:** 53. 1797. (Type: Guadeloupe, *Badier s.n.* (holotype, P-JU #14094A!; IDC 6206. 1036: II. 1, photo!).)
- *Melastoma brachiata* M. Vahl, Eclog. Amer. **3:** 34. 1807. (Type: Montserrat, *Ryan 2 & 7* (holotype, C!; IDC 2201. 46: I. 6, photo!).)
- *Melastoma expansa* M. Vahl, Eclog. Amer. **3:** 21. 1807. (Type: Montserrat, *Ryan s.n.* (holotype, C!, IDC 2201. 47: I. 3, photo!; isotype, BM!).)
- *Melastoma piluliferum* M. Vahl, Eclog. Amer. **3:** 15. 1807. (Type: Martinique, *Rohr 102* (holotype, C!; IDC 2201. 47: III. 6, photo!).)
- *Melastoma virescens* M. Vahl, Eclog. Amer. **3:** 18. 1807. (Syntypes: ex Trinidad, *Ryan, Rohr s.n.* (C!); ex Ins. Trinitatis, *Rohr s.n.* (C!; IDC 2201. 48: II. 2, photo!).)
- *Melastoma pendulifolia* Bonpl. *in* Humb. & Bonpl., Monogr. Melast. **1:** 79, *t. 35.* 1811, non Rich. (1792).

Melastoma ceanothina DC., Prodr. **3:** 189. 1828. (Syntypes: Guadeloupe, *Perrottet s.n.* (G-DC, IDC 2562. 515: I. 6, photo!); Havana, *de la Ossa s.n.* (n.v.).) Lectotype not selected.

Miconia pendulifolia DC., Prodr. **3:** 187. 1828, based on *Melastoma pendulifolia* Bonpl. (Type: Bonpland's plate may be the best type for this name unless a specimen can be found. There is a specimen in hb. Rich. (P!) with this inscription, but it does not match the plate and is better referred to *Miconia prasina* (Sw.) DC.)

Miconia pyramidalis (Desr.) DC., Prodr. **3:** 188. 1828.

Miconia virescens (M. Vahl) Triana, Trans. Linn. Soc. London **28:** 107. 1871.

Weedy shrubs or small trees to 8 m tall, young branches compressed; young stems, leaves, petioles, inflorescence axes, and calyces densely white to rufous stellate-furfuraceous, glabrescent with age. Leaves with petioles shallowly sulcate adaxially, 8-45 mm long; blades ovate to lanceolate, 7-20 × 2-8 cm, base rounded to cuneate, apex acuminate, margin prominently to obscurely toothed, sparsely setose, the setae extending from each tooth, additional submarginal setae somtimes also present, nerves 5, basal, the outer pair somewhat less distinct, firmly membranaceous, adaxial surface glabrous to sparsely stellate, abaxial more densely rufous-stellate. Panicles 3-16 cm long with secund flowers along branches; bracts linear-subulate, 1 mm long, persistent. Flowers sessile; calyx campanulate to infundibular, 1.4-3.7 mm long, stellate-puberulent, 5-lobed, the lobes hemispherical to deltate, margin entire to lacerate; petals 5, 2-3 mm long, apex obtuse, white to pale pink; stamens with filaments weakly dimorphic, glabrous, anthers linear to arcuate, 1.4-3.5 mm long, uniporate; ovary 3-locular, style straight, 4-5 mm long, stigma flaring but not at all capitate. Fruits 3.2-4.5 mm in diameter, 10-ribbed, blue, purple or black.

GENERAL DISTRIBUTION: Common throughout Central America, northern South America and the West Indies.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Saba!, St Eustatius!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

NOTE: For additional synonymy see Cogniaux *in* A. DC., Monogr. Phan. **7:** 798. 1891.

Miconia luciana H. A. Gleason, J. Arnold Arbor. **28:** 334. 1947.

Type: St. Lucia, Quilesse, alt. 300 m, *Beard 477* (holotype, NY, photo at A!; isotypes, A!, K!).

Shrub or small tree to 8 m tall, bark red-brown, young branches tetragonal, fawn-brown, glabrous or only sparsely furfuraceous, other parts wholly glabrous. Leaves with petioles 2.5-9.4 cm long; blades ovate to elliptic or lanceolate, 12.5-20.5 × 6.6-11.5 cm, base cordate, apex acuminate, margin entire to crenate, nerves 5, basal, adaxial surface much darker than abaxial. Panicles spreading, trichotomous, 9.3-14 cm long, almost as broad as long, branches terminating in dichasia; bracts lanceolate, 0.8-2.2 mm long. Central flowers sessile or on pedicels 1 mm long, laterals on pedicels 3-7 mm long; calyx infundibular to campanulate, 2.6-4 mm long, stellate-pubescent, with 5 shallow teeth, light pink; petals oblong-oblanceolate, 2.7-5.2 mm long, rose-pink, sparsely furfuraceous abaxially; stamens with filaments 3.3 mm long, anthers linear, 2.2-2.7 mm long, yellow to purple; style linear, 3-6 mm long, glabrous, stigma punctate. Fruits unknown.

DISTRIBUTION IN LESSER ANTILLES: Endemic to St. Lucia!.

COMMON NAMES: Bois cendre, bwa senn.

Miconia martinicensis Cogn. *in* A. DC., Monogr. Phan. **7:** 913. 1891.

Lectotype: Martinique, *Hahn 1174* (P!; isolectotype, K!); designated by Howard & Kellogg, J. Arnold Arbor. **67:** 246. 1986.

Shrubs or small trees to 3 m tall, young branches flattened, becoming terete with age (never square as in *M. coriacea*); young stems, leaves, petioles, and inflorescence axes rufous-furfuraceous, soon glabrescent, not at all setose. Leaves borne upright near ends of branches; petioles 3-8 mm long; blades ovate to elliptic, 5-9.5 × 2.7-4.3 cm, base rounded to more often cordate, apex acute to acuminate, margin entire, strongly inrolled, nerves 5, basal, coriaceous, adaxial surface blackish, drying characteristically grayish. Panicles 4-10 cm long, longer than wide; bracts minute, fugacious. Flowers with calyx conical, 2-2.5 mm long, obscurely 5-lobed, stellate-pubescent; petals 5, obovate, 1-2 mm long, white; anthers flaring, 2 mm long, biporate at apex, lighter colored; style linear, 2.5-3 mm long, stigma punctate, not at all expanded. Fruits 3.5-4.1 mm in diameter, 10-ribbed, black.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!.

Miconia mirabilis (Aublet) L. O. Williams, Fieldiana, Bot. **29:** 574. 1963.

Basionym: *Fothergilla mirabilis* Aublet, Hist. Pl. Guiane **1:** 441, *t. 175.* 1775.
Type: "Caienne," *Aublet s.n.* in hb. Poiret (BM!, LINN-Sm. 782.51 (IDC 5073. 348: III. 3, photo), P!).
Syn.: *Tamonea guianensis* Aublet, Hist. Pl. Guiane **1:** 441. 1775 in some copies, nom. invalid.
Melastoma tamonea Sw., Prodr. 70. 1788, nom. illegit. for *Tamonea guianensis* Aublet and *Fothergilla mirabilis* Aublet.
Melastoma dodecandra Desr. *in* Lam., Encycl. **4:** 46. 1797. (Type: ". . .croît naturellement dans les Antilles," "*Clarck*" *s.n.* in hb. Thouin (holotype, P, n.v.; isotype, MPA).)
Melastoma compressa M. Vahl, Eclog. Amer. **3:** 23. 1807, nom. illegit. for *Melastoma dodecandra* Desr.
Melastoma fothergilla Bonpl. var. *lanceolata* Bonpl. *in* Humb. & Bonpl., Monogr. Melast. **1:** 71, *t. 32.* 1811, based on *Fothergilla mirabilis* Aublet. Also an inadmissible epithet for the typical variety.
Melastoma fothergilla Bonpl. var. *ovalis* Bonpl. *in* Humb. & Bonpl., Monogr. Melast. **1:** 71. 1811, nom. illegit. for *Melastoma dodecandra* Desr.

Diplochita florida DC., Prodr. **3:** 176. 1828. (Type: Cayenne, "in Guiana gallica," *Patris s.n.* (holotype, G-DC; IDC 2562. 511: III. 8, photo!).)

Diplochita fothergilla DC., Prodr. **3:** 176. 1828, based on the illegitimate name *Melastoma fothergilla* Bonpl.

Miconia florida (DC.) Naudin, Ann. Sci. Nat. Bot. sér. 3, **16:** 244. 1851.

Miconia fothergilla Naudin, Ann. Sci. Nat. Bot. sér. 3, **16:** 119. 1851, based on the illegitimate name *Melastoma fothergilla* Bonpl.

Miconia guianensis Cogn., Jahrb. Königl. Bot. Gart. Berlin **4:** 280. 1886, based on the invalid name *Tamonea guianensis* Aublet.

Miconia guianensis Cogn. var. *ovalis* Cogn., Jahrb. Königl. Bot. Gart. Berlin **4:** 280. 1886, based on the illegitimate name *Melastoma fothergilla* Bonpl. var. *ovalis* Bonpl.

Miconia guianensis Cogn. var. *vulgaris* Cogn. *in* C. Martius, Fl. Bras. **14**(4): 246. 1887. Inadmissible epithet for the typical variety.

Small weedy tree to 14 m tall, bark dull white, trunks muscular, often with prop roots, young branches terete; young branches, leaves, petioles, and inflorescence axes densely covered with stellate tomentum. Leaves with petioles, 1.4-9.4 cm long, rufous; blades oblong, elliptic, or lanceolate, the largest 10-22 × 3.5-10 cm, base cuneate to rounded, apex short-acuminate, margin entire, nerves 5 to 7, basal, rigid, adaxial surface glabrescent, shining, tomentum abaxially persistent, becoming tawny. Panicles thyrsiform, 10-17 cm long, often with 4 branches at lower nodes; axes compressed; bracts oblong-obovate, 6-14 mm long, erect, cinerescent, caducous, enclosing flower buds. Flowers in 3-flowered cymes, on pedicels 3-7 mm long; calyx campanulate, 4-6 mm long, becoming urceolate, early glabrous or stellate-tomentose, later glabrescent, lobes triangular, adaxially stellate; petals 6, oblong, 6-8 mm long, apex obtuse, white, glabrous; stamens with filaments 4.5-5 mm long, anthers arcuate, 6-9 mm long, uniporate, yellow to red; ovary 3- to 5-locular, style 6-10 mm long, pubescent below, stigma capitate. Berries 6-9 mm in diameter, not notably ribbed, red, becoming purple-black, completely glabrous at maturity.

GENERAL DISTRIBUTION: West Indies and northern South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines, Grenada!, Barbados.

COMMON NAMES: Bwa kót, bois cote (St. Lucia).

Miconia prasina (Sw.) DC., Prodr. **3:** 188. 1828.

Basionym: *Melastoma prasina* Sw., Prodr. 69. 1788.

Lectotype: Jamaica, *Swartz s.n.* (S!); designated by Howard & Kellogg, J. Arnold Arbor. **67:** 248. 1986.

Syn.: *Melastoma laevigata* sensu Aublet, Hist. Pl. Guiane **1:** 412, *t. 159.* 1775.

Melastoma parviflora Aublet, Hist. Pl. Guiane **1:** 433, *t. 171.* 1775. (Type: BM!, LINN-Sm. 782.13!, IDC 5073. 346: III. 7, photo!).

Melastoma pendulifolia Rich., Actes Soc. Hist. Nat. Paris **1:** 109. 1792. The type of this species should be a Leblond collection from Guiana. Cogniaux (*in* A. DC., Mongr. Phan. **7:** 1190. 1891) referred it to *M. prasina.* There is a specimen in hb. Rich. (P!) that is referrable to *M. prasina*, but it has label data cited in the protologue of *M. pendulifolia* Bonpl. The latter, however, is illustrated with a specimen of *M. laevigata.*

Miconia parviflora (Aublet) Cogn. *in* A. DC., Monogr. Phan. **7:** 805. 1891, non Macfad. (1837), nor (Benth.) Cogn. (1887).

Shrub or small tree to 10 m tall, but more often 2-4 m, young branches more or less tetragonal; young branches, leaves, and inflorescence axes covered with closely appressed, velutinous indumentum, often appearing glabrous. Leaves with petioles 6-30 cm long; blades elliptic to ovate or lanceolate, 10.5-20.8(-27.5) × 3.6-7.4(-11.2) cm, base attenuate, strongly decurrent on petiole, apex acute or acuminate, margin entire, crenate, or shallowly dentate, nerves 5, outer pair of laterals suprabasal, inner pair joining midrib 5-10 mm above outer pair, glossy, glabrous except for appressed, stellate pubescence on abaxial veins. Panicles pyramidal, 7-18 cm long; bracts triangular to ovate, 0.5-1 mm long, stellate-pubescent, persistent. Flowers glomerulate, sessile or nearly so; calyx campanulate, becoming urceolate, 1.3-3.5 mm long, stellate-pubescent, lobes triangular; petals oblong, oblanceolate, or obovate, 1.1-2.5 mm long, apex rounded, white to pinkish, granulose (not stellate) on both surfaces; stamens with filaments 2.5-4 mm long, anthers somewhat curved, 1.7-2.8 mm long, white; ovary trilocular, style linear, 3-5.2 mm long, glabrous, stigma flaring. Berries 3-5 mm in diameter, 10-ribbed, bright blue to deep purple or black.

GENERAL DISTRIBUTION: Mexico and Central America, Greater Antilles, Trinidad, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique, St. Vincent!, Grenada!.

Miconia racemosa (Aublet) DC., Prodr. **3:** 179. 1828.

Basionym: *Melastoma racemosa* Aublet, Hist. Pl. Guiane **1:** 406, *t. 156.* 1775.

Type: BM, LINN-Sm. 782.4! (IDC 5073. 346: II. 5, photo!), P-JU #14085 (IDC 6206. 1035: III. 3, 4, photo!).

Syn.: *Melastoma decussata* M. Vahl, Eclog. Amer. **1:** 42. 1797, nom. illegit. for *Melastoma racemosa* Aublet.

Shrub or small tree to 7 m tall, young twigs tetragonal, drying red-brown, glabrous except for collar of long tangled hairs at nodes, to 2.5 mm long; young leaves, petioles, and inflorescence axes stellate-furfuraceous. Leaves with petioles 8-45 mm long, reddish, the hairs forming a dense lanate tuft at junction with blade and sometimes also along ridges; blades ovate, elliptic, or obovate, 10-23 × 4.7-11.8 cm, base cuneate, apex acute to acuminate, margin dentate, ciliate, nerves 5, drying reddish, 3 prominent and 2 obscure, intramarginal, secondary veins from midrib sigmoid, membranaceous, vestiture highly variable, of scattered stellate hairs on both adaxial and abaxial surface, thickened cilia on margin and scattered intramarginally on some plants, stellate hairs more dense over abaxial veins and mixed with longer, tangled, arachnose hairs. Panicles spreading, 7.4-16.5 cm long; branches strongly cincinnate with secund flowers; bracts lance-linear to triangular or ovate, decreasing in size from 4.5 mm long at base of inflorescence to 0.5 mm beneath each flower, margin erose, ultimate bracts persistent. Flowers sessile; calyx urceolate, 1.2-1.6 mm long, with thickened rim, glabrous; petals cuneate, 1-1.6 mm long, apex retuse, white or white with rose center, to rose-pink; stamens with filaments 1-1.3 mm long, anthers 1-1.3 mm long, uniporate, rose or purple; style curved, 1.1-1.5 mm long, glabrous, stigma punctate or slightly expanded. Fruits 3.8-5 mm in diameter, lavender, darkening to purple, blue-black, or black.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, Virgin Islands, Lesser Antilles, Trinidad and Tobago, South America.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, St. Lucia!, Grenada!.

Miconia secunda R. Howard & E. Kellogg, J. Arnold Arbor. **67:** 250. 1986. FIGURE 195.

Type: St. Lucia, Savanne Edmund district, southeast of Piton Troumasse, elev. 1800-2000 ft., 22-23 April, *Proctor 17726* (holotype, A!; isotype, BM!).

Small tree or shrub, 5-7 m tall, young branches compressed tetragonal; young branches, petioles, inflorescence axes, bracts, and calyces appressed stellate-furfuraceous. Leaves with petioles (9-)14-54 mm long; blades ovate to elliptic, 11-27 × 6.1-16.2 cm, base rounded to cordate, apex short-acuminate, margin entire, nerves 5, basal, the 2 intramarginal ones weaker than other 3, adaxial surface darker than abaxial, surfaces glabrous except for stellate-furfuraceous primary abaxial veins. Panicles 10.7-21.5 cm long, ultimate branches cincinnate with secund flowers; bracts lanceolate below to deltate or broadly ovate above, decreasing in size acropetally from 1.5-3 mm long. Flowers sessile, scented; calyx conical, 1.5-2.5 mm long, obscurely 5-crenate; petals oblong-oblanceolate, clavate, 1.3-2 mm long, white; anthers flaring, 1.2-2 mm long, apex truncate; style linear, 2.9-4.7 mm long, glabrous, stigma more or less flaring, papillate. Fruits unknown.

DISTRIBUTION IN LESSER ANTILLES: Endemic to St. Lucia!.

Miconia striata (M. Vahl) Cogn. *in* A. DC., Monogr. Phan. **7:** 765. 1891.

Basionym: *Melastoma striata* M. Vahl, Eclog. Amer. **3:** 14. 1807.
Type: Montserrat, *Ryan 5* (holotype, C!; IDC 2201. 48: I. 3, photo!).
Syn.: *Miconia antiguensis* Urban, Repert. Spec. Nov. Regni Veg. **17:** 162. 1920. (Type: Antigua, near All Souls, 4-16 Feb. 1913, *Rose, Fitch, & Russell 3288* (lectotype, B destroyed; isolectotype, NY!).)

Shrub or small tree to 5 m tall with upper internodes > 2 cm long, bark whitish, young branches more or less compressed; young branches, leaves, petioles, and inflorescence axes stellate-furfuraceous. Leaves with petioles 12-37 mm long; blades elliptic to lanceolate, 10.5-19.5 × 4.6-7.5 cm, base rounded, apex acuminate, sometimes somewhat asymmetrical, margin sharply dentate, eciliate, nerves 5, 3 basal, 2 slightly suprabasal, pubescence becoming sparse with age but persisting at least on abaxial veins. Inflorescence a panicle of 3-flowered cymes, 9-12 cm long; bracts linear, 1.2-2.4 mm long, stellate-pubescent, fugacious. Flowers on pedicels 2-5 mm long; calyx campanulate, ca. 3 mm long, stellate-pubescent; petals broadly obovate, ca. 3.5 mm long, white; stamens with filaments 2.5-3 mm long, weakly dimorphic, anthers straight, 2.5-3.5 mm long, uniporate; style 6.5 mm long, glabrous, stigmata flaring but not capitate. Berries ca. 6 mm in diameter, crowned by calyx ring, usually stellate-ferrugineous pubescent, 10-ribbed, blackish.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

Miconia tetrandra (Sw.) D. Don *in* Loudon, Hort. Brit. 174. 1830.

Basionym: *Melastoma tetrandra* Sw., Prodr. 72. 1788.
Lectotype: Jamaica, *Swartz s.n.* (S!, photo A!; isolectotypes, BM!, C!).
Syn.: *Melastoma farinulentum* Sw. ex Wikström, Köngl. Vetensk. Acad. Handl. **1827:** 65. 1827. (Type: Guadeloupe, *Forsström s.n.* **1827:** (holotype, S!, photo A!).)
Tetrazygia tetrandra (Sw.) DC., Prodr. **3:** 172. 1828.
Cremanium tetrandrum (Sw.) Griseb., Fl. Brit. W. Indian Is. 262. 1860.

Tree to 15 m tall, bark gray, smooth to slightly fissured, inner bark light orange-yellow, young branches compressed tetragonal; young branches, leaves, petioles, and inflorescence axes appressed stellate-furfuraceous, although often appearing glabrous, grayish to rusty brown. Leaves with petioles 1.6-6.5 cm long, gray; blades elliptic to narrowly ovate, 8-18.5 × 3.1-9.2 cm, base rounded to cordate, apex acuminate, margin entire, often somewhat revolute, nerves 3, impressed above, prominent below, the 2 laterals suprabasal, coriaceous, adaxial surface dark green, glossy, glabrous or with sparse stellate pubescence basally, abaxial surface appressed stellate-tomentose, pale. Panicles dense, pyramidal, 6.9-17.5 cm long; bracts triangular, 0.6-1 mm long, stellate-furfuraceous, persistent. Flowers glomerulate, sessile or nearly so, 4-merous; calyx campanulate, 1.1-1.9 mm long, shallowly 4-lobed, stellate; petals 4, obovate, 1.1-1.8 mm long, yellow to white, glabrous; stamens 4, with filaments 1.5-2 mm long, anthers cuneate, distally flaring and truncate, 1.1-1.5 mm long, biporate, yellow; style linear, 1.5-3.1 mm long, glabrous, stigma punctate. Berries 2.8-4.5 mm in diameter, red, becoming purple-violet to black.

GENERAL DISTRIBUTION: Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Grenada!.

Miconia trichotoma (Desr.) DC., Prodr. **3:** 188. 1828.

Basionym: *Melastoma trichotoma* Desr. *in* Lam., Encycl. **4:** 53. 1797.

Type: Antilles, *Herb. Surian 774* (holotype, P-JU #14084!; IDC 6206. 1035: III. 2, photo!).

Syn.: *Melastoma nigricans* M. Vahl, Eclog. Amer. **3:** 26. 1807, illegitimate renaming of *Melastoma trichotoma* Desr.

?Melastoma matuba Sprengel, Neue Entd. **3:** 61. 1822. (Type: "Guadeloupe et Antigua" (B, presumably destroyed).)

Miconia rivoeriae Naudin, Ann. Sci. Nat. Bot. sér. 3, **16:** 170. 1851. (Type: Martinique, *Rivoire s.n.* (lectotype, P!; isolectotype, GH!); designated herein.)

Cremanium rivoeriae (Naudin) Griseb., Fl. Brit. W. Indian Is. 262. 1860.

Shrub or small tree, 7-8(-25) m tall, young branches terete to obscurely tetragonal; young branches, leaves, and inflorescence axes appressed stellate-furfuraceous; stems and abaxial leaf venation notably red in living specimens. Leaves with petioles 10-29 mm long; blades broadly ovate to oblong-elliptic, 13.5-22.5 × 5.5-10.8 cm, base rounded to subcordate, apex acuminate, margin entire, nerves 5, the 2 intramarginal ones fine and basal, the inner 2 laterals heavier and suprabasal, surfaces glabrous except for stellate-furfuraceous abaxial veins. Panicles open, spreading, finely branched, 6-16.3 cm long; axes red, branching trichotomous; bracts lanceolate, decreasing in length acropetally from 1.9 to 0.3 mm, stellate-furfuraceous. Flowers glomerulate, sessile or nearly so; calyx conical, 1-1.3 mm long, 5-crenate, stellate-furfuraceus; petals obovate, 1-1.2 mm long, rose to white, glabrous; stamens with filaments 1.5 mm long, anthers 0.9-1.2 mm long, uniporate, white; style linear, 2.1-2.5 mm long, glabrous, stigma punctate. Berries 1.5-3.2 mm in diameter, 8-ribbed, red, becoming black or deep purple.

GENERAL DISTRIBUTION: Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

NOTE: Wurdack (Phytologia **11:** 386. 1965) said this species differs from *Miconia ernstii* in larger, well-petioled leaves and smaller, non-secund flowers with shorter, obliquely large-pored anthers. *M. secunda* from St. Lucia suggests *M. ernstii* in reproductive features (secund flowers, well-prolonged connective); however, the St. Lucia plants show much larger, well-petioled leaves with developed, laxly reticulate tertiary veins.

MOURIRI Aublet

Mouriri Aublet, Hist. Pl. Guiane **1:** 452, *t. 30.* 1775.

Syn.: *Guildingia* Hook., Bot. Misc. **1:** 122. 1829. Type: *Guildingia psidioides* Hook.

Shrubs or trees, stems quadrangular, glabrous. Leaves of a pair subequal, sessile or short-petiolate; blades entire, inconspicuously pinnately veined, lacking basal or suprabasal venation. Flowers in stalked or sessile axillary clusters, or borne at leafless nodes, 5-parted; hypanthium hemispherical or campanulate; calyx cup-shaped, lobed or subtruncate; petals 5, free, acute or acuminate; stamens 10, isomorphic, incurved becoming exserted, filaments terete or flattened, glabrous, anthers elongate with 2 lateral pores or slits, connective prolonged at base forming spur with large gland medial in position; ovary 1- to 5-celled, ovules 1, 2, or few per locule, basal, style slender. Fruits baccate, orange to black; seeds 1 or 2 (in our species), partially shiny.

TYPE: *Mouriri guianensis* Aublet.

A genus of about 80 species of tropical America. For more information see T. Morley, Fl. Neotropica Monogr. **15:** 1-295. 1976.

CULTIVATED TAXA

Mouriri rhizophorifolia (DC.) Triana, Trans. Linn. Soc. London **28:** 153. 1871.

Basionym: *Olisbea rhizophorifolia* DC., Prodr. **3:** 31. 1828.
Type: St. Vincent, *A. B. Lambert s.n.* (holotype, G-DC; IDC 2562. 478: III. 6, photo!).
Syn.: *Guildingia psidioides* Hook., Bot. Misc. **1:** 122, *pl. 30.* 1829. (Type: loc. cit. *pl. 30.*)

Morley (Fl. Neotrop. Monogr. 15: 112. 1976) stated, "The name (*Guildingia psidioides*) was originally based on a description and drawing sent by L. Guilding to Hooker, but both are now lost. Description and drawing were taken from a tree cultivated at the botanic garden on St. Vincent, now lost, and so were probably from the same tree that the Lambert type specimen (*Olisbea rhizophorifolia)* came from." He also stated (loc. cit. p. 115), "The Reverend L. Guilding of St. Vincent reported to W. J. Hooker that the species was native to Martinique, from whence it was introduced to the Botanic Garden on St. Vincent (Hooker, 1829). However, no verification can be found for this report, and it seems probable that Guilding was misinformed as to the origin of the plant material brought to St. Vincent."

The species is known from Venezuela, Trinidad, and Tobago, and the fruits are described by Morley as orange or yellow-orange. Since Morley wrote his treatment, the original colored plate and description Guilding sent to Hooker have been located, showing bright orange fruits. It is worth noting that Lambert did not collect in the West Indies but did receive specimens from Alexander Anderson, whose administration of the St. Vincent Botanic Garden preceded Guilding's. The origin of this material will be discussed below.

Mouriri guianensis Aublet, Hist. Pl. Guiane **1:** 452, *t. 180.* 1775.

Lectotype: French Guiana, *Aublet s.n.* (BM, lower right corner of sheet).

Morley (loc. cit. p. 170) reported the distribution of this species to be Trinidad, Venezuela, the three Guianas, and Brazil. He also noted (loc. cit. p. 173), "A Guilding collection of *M. guianensis* from St. Vincent (OXF) is undoubtedly from a cultivated plant . . . The ripe fruit colors of purple-black and black are reported to date only from Guyana and Surinam, elsewhere being orange to red.''

Anderson's unpublished manuscript sheds some light on these plants and their origin. He wrote: ''There are two varietys in the garden, one with black fruit, the other with yellow. The first is the largest and best. Seeds of it I brought from Trinidad to the Garden in 1786. A plant of the other was sent to me from Martinico in 1786 by Mr. Aquart who procured it from Cayenne or some other part of the continent.''

Anderson may have reversed the sources. The orange-fruited *M. rhizophorifolia* may have been his own collection from Trinidad, the black-fruited *M. guianensis*, the plant acquired from Aquart in Martinique, with whom he exchanged many plants and obtained many specimens from French Guiana. In addition to the Guilding and ''Lambert'' specimens of *M. rhizophorifolia*, Morley cited ''*Lockhart s.n.* (BM, G)'' from Trinidad (loc. cit. p. 115) and *Caley s.n.* (loc. cit. p. 282). The first is correctly Lochhead, Anderson's companion on trips to Trinidad. Caley was Anderson's successor as director of the botanic garden. Both collected specimens from plants in the botanic garden and sent specimens to Hooker. Guilding had access to Anderson's horticultural notes, but Caley did not, and this may have been the source of the incorrect information sent to Hooker. Neither species of *Mouriri* has been found subsequently in St. Vincent.

Mouriri domingensis (Tussac) Spach, Hist. Nat. Vég. **4:** 276. 1835.
FIGURE 194.

Basionym: *Petaloma domingensis* Tussac, Fl. Antill. **3:** 119, *pl. 37.* 1824-26, n.v. Type: Haiti, *Poiteau s.n.* (holotype, P; isotype, BR).

Syn.: *Aulacocarpus quadrangularis* Griseb., Fl. Brit. W. Indian Is. 239. 1860. (Type: Antigua, *Wullschlägel 214* (holotype, GOET; isotype, M).)

Tree to 10 m tall. Leaves with petioles 3-5 mm long; blades ovate, ovate-elliptic, or oblong, 4-6 × 2.5-3.5 cm, base rounded to acute, apex acute to short-acuminate, margin entire, midrib often curved, lateral veins pinnate, inconspicuous, rigid or firm. Flowers axillary or at leafless nodes, clustered, articulated on pedicels 3-6 mm long; hypanthium 1.2-1.6 mm long, lobes subtruncate, minutely apiculate, 1-1.6 mm long; petals oblong, 4 × 2-4 mm, apex acute, white or rose-pink; filaments of two lengths, 3-6 mm long; ovary inferior, 4- or 5-locular, style 6-10 mm long. Berries subglobose, 12-15 mm in diameter, yellow-orange to black; seeds ellipsoidal, 7-11 × 5-8 mm, 5 mm thick.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, St. Croix.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!.

COMMON NAMES: Mêle, bois mêle.

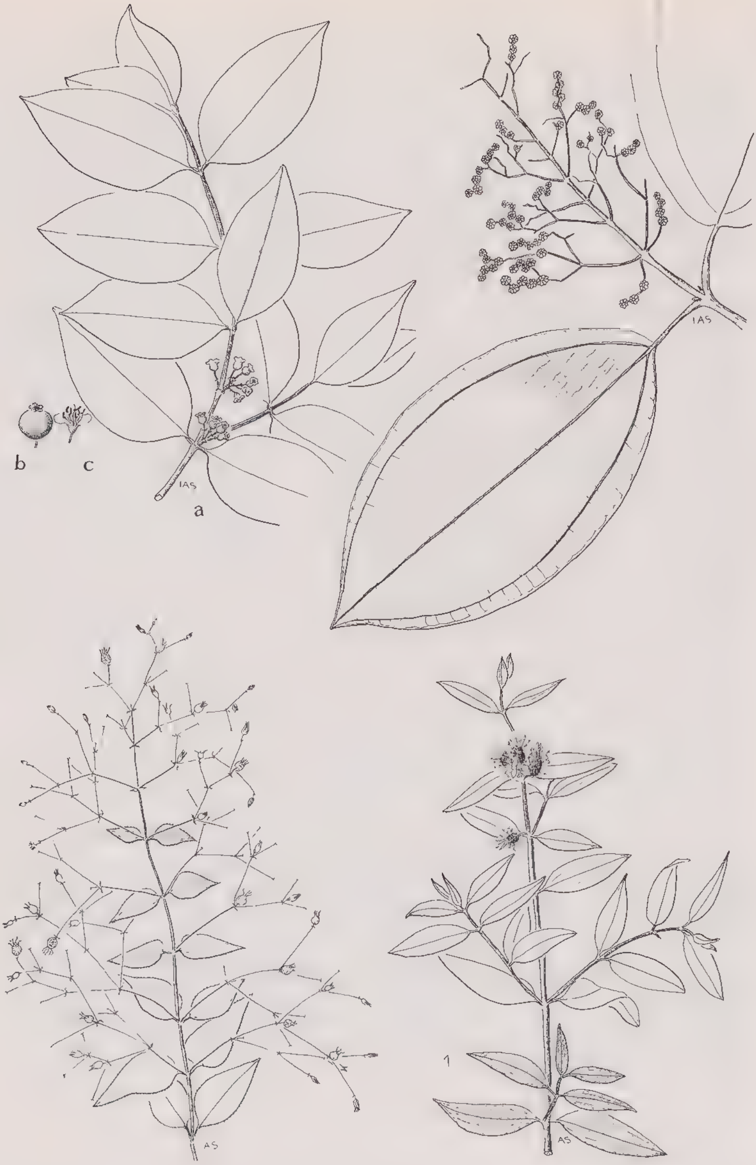


FIGURE 194 (upper left). *Mouriri domingensis*: a, fruiting branch, × 0.35; b, fruit, × 0.35; c, flower, × 0.35. FIGURE 195 (upper right). *Miconia secunda*, × 0.35. FIGURE 196 (lower left). *Nepsera aquatica*, × 0.35. FIGURE 197 (lower right). *Pterolepis glomerata*, × 0.35.

NEPSERA Naudin

Nepsera Naudin, Ann. Sci. Nat. Bot. sér. 3, **13:** 28. 1850.

Diffusely branched low herbs, inconspicuously pubescent or glabrate, stems and petioles often brightly colored. Leaves of a pair subequal, petiolate; blades entire or minutely serrate, venation basal acrodromous, membranaceous. Panicles diffuse, terminal and axillary, exceeding the leaves, many-flowered. Flowers with hypanthium cylindrical, glabrous inside; calyx lobes linear-subulate and persistent; petals oblong-lanceolate, each with single terminal seta; stamens 8, slightly dimorphic, glabrous, anthers linear-subulate, with one small apical pore, connective at base with bilobed appendage; ovary free from hypanthium, 3-locular, glabrous, style slender, stigma capitate. Fruit a capsule; seeds minute, numerous, foveolate, slightly cochleate.

TYPE: *Nepsera aquatica* (Aublet) Naudin.

A monotypic genus of swampy or wetter areas at lower elevations in tropical America.

Nepsera aquatica (Aublet) Naudin, Ann. Sci. Nat. Bot. sér. 3, **13:** 28. 1850.
FIGURE 196.

Basionym: *Melastoma aquatica* Aublet, Hist. Pl. Guiane **1:** 430, *pl. 169.* 1775.
Type: French Guiana, *Aublet s.n.* (BM, LINN-Sm. 654.11 (IDC 5073. 302: II. 2, photo!).)
Syn.: *Rhexia aquatica* (Aublet) Sw., Fl. Ind. Occid. **2:** 650. 1800.

Weak herb < 1 m tall, stems quadrangular, sparsely and inconspicuously crispose pubescent. Leaves with petioles 0.5-2 cm long, usually bright red; blades ovate to elliptic-ovate, 2-5 × 1.5 cm, base round or cordate, apex acute, margin minutely serrate, 2 pairs of basal veins, pubescent on veins below. Panicles < 10 cm long, branches tenuous. Flowers on elongate pedicels; hypanthium 1.8-2 mm long; calyx lobes 2-3 mm long, acuminate; petals 4.5-7 × 2.4-3.8 mm, white; filaments 1.5-2 mm long, anthers 2.5-3 mm long, purple, bilobed appendage 0.3 mm long; style 2.5 mm long. Capsules 3 mm in diameter; seeds flattened, cochleate, 0.5 mm in diameter.

GENERAL DISTRIBUTION: Central America, Greater Antilles, Trinidad, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Antigua!, St. Kitts, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados.

NOTES: To be expected on most of the islands but the unverifiable records cited are those of Vélez. The St. Vincent record is of an Anderson collection from the botanic garden, which he introduced from Guiana.

PTEROLEPIS (DC.) Miq.

Pterolepis (DC.) Miq., Comm. Phytogr. **2:** 72. 1840, nom. cons.

Basionym: *Osbeckia* sect. *Pterolepis* DC., Prodr. **3:** 140. 1828.

Herbs with stalked stellate hairs on hypanthium, or with bristles. Leaves of a pair equal; blades with basal acrodromous venation, membranaceous. Flowers clustered or in terminal or axillary cymes; calyx lobes 4, alternating with stalked hairs, sepals ovate with ciliate margins and terminating with long bristle; petals 4, obovate to elliptic, white or occasionally pink or purple-pink, ciliate; stamens usually 8, dimorphic, anthers with single apical pore, connective expanded and bilobed at base; ovary free but enclosed in hypanthium, 4-locular, with ring of bristles at style base, style filiform. Capsules 4-valved; seeds numerous, cochleate.

TYPE: *Pterolepis parnassifolia* (DC.) Triana (*Osbeckia parnassifolia* DC.), typ. cons.

A genus of 35 species of tropical America.

Pterolepis glomerata (Rottb.) Miq., Comm. Phytogr. **2:** 178. 1840.
FIGURE 197

Basionym: *Rhexia glomerata* Rottb., Acta Lit. Univ. Hafn. **1:** 276, *t. 4.* 1778.
Type: Loc. cit. *t. 4.*
Syn.: *Osbeckia glomerata* (Rottb.) DC., Prodr. **3:** 141. 1828.
Arthrostemma glomeratum (Rottb.) Cham., Linnaea **9:** 454. 1834.
Pterolepis glomerata (Rottb.) Miq. var. *longifolia* Cogn. *in* C. Martius, Fl. Bras. **14**(3): 275. 1885. (Type: several syntypes cited.)

Herb < 0.5 m tall, often woody at base. Leaves with petioles 0.2-0.8 cm long; blades ovate, oblong-ovate, or lanceolate, 1.5-5.5 × 0.4-1.5 cm, base narrowed or rounded, apex acuminate, margin entire, 1 pair of basal veins, membranaceous, hairs on upper surface with embedded linear bases, finely strigose below. Flowers clustered at ends of branches or subsessile in axils of upper leaves, subtended by ovate to lanceolate, strigulose bracts; hypanthium 3-5 mm long, densely setose or strigose; calyx lobes ovate, 3-5 × 2-3 mm; petals obovate or elliptic, to 10 × 8 mm, white, rose, or purple; stamens with anthers < 4.5 mm long, purple, connective lobes yellow; style < 12 mm long. Capsules ovoid to globose, 4 mm in diameter; seeds minute.

GENERAL DISTRIBUTION: Trinidad, Venezuela, Guiana, Brazil.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAME: Herbe sûre.

TETRAZYGIA Rich. ex DC.

Tetrazygia Rich. ex DC., Prodr. **3:** 172. 1828.

Shrubs or small trees, branches and foliage usually with peltate-scaly indumentum. Leaves of a pair subequal, petiolate; blades oblong, ovate to lanceolate, margin entire or toothed, venation acrodromous, basal and/or suprabasal, with 1 or 2 pairs of veins. Inflorescence a terminal panicle or corymb. Flowers numerous, 4- or 5-merous, < 2 cm in diameter; hypanthium characteristically constricted above, calyx limb flaring; petals obovate, obtuse; stamens 8 to 10, isomorphic, anthers with apical pore, connective not extended, eglandular; ovary partly fused to hypanthium, 4-or 5-locular, style slender, stigma capitate. Fruits baccate, crowned by persistent style; seeds numerous, minute.

LECTOTYPE: *Tetrazygia discolor* (L.) DC.

A genus of 25 species of the West Indies with one species occurring in Florida.

NOTES: Many of Cogniaux's records of species of *Tetrazygia* from the Lesser Antilles are apparently erroneous. *Tetrazygia elaeagnoides* (Sw.) DC. was cited from Martinique on the basis of Plée and West collections. Urban (Symb. Antill. **3:** 101. 1902) noted that many of Plée's specimens from "Martinique" were actually from Puerto Rico. West did collect on Martinique but made more significant collections on Puerto Rico, St. Croix and other Virgin Islands where *T. elaeagnoides* is common. Cogniaux's citation of a Schomburgk collection of *T. pallens* (Sprengel) Cogn. from Dominica is an error for Hispaniola as Domin (Acta Bot. Bohem. **9:** 39. 1919) indicated. Likewise the records of *T. angustifolia* (Sw.) DC. from Trinidad (*Sieber 127*), and of *T. discolor* (L.) DC. from Trinidad (*Sieber 61*) and Guyana (*Leblond s.n.*) are probably errors for Martinique according to Williams (Fl. Trinidad Tobago **1:** 368. 1934) since neither species has been recollected in Trinidad or Guyana.

KEY TO THE SPECIES

Leaves linear-lanceolate, < 1.2 cm wide; inflorescence a panicle . . . . *T. angustifolia*

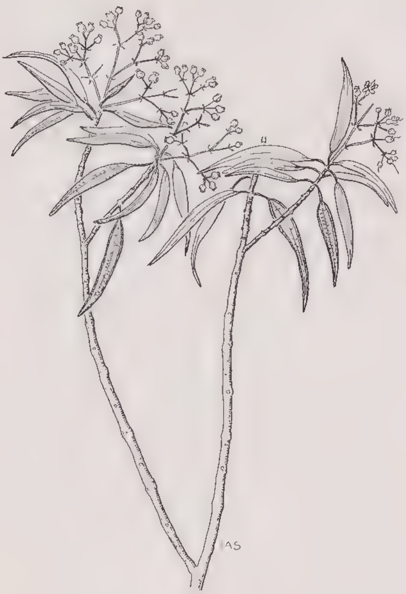
Leaves ovate or ovate-lanceolate, usually 5-8 cm wide; inflorescence a densely flowered corymb . . . . *T. discolor*

Tetrazygia angustifolia (Sw.) DC., Prodr. **3:** 172. 1828. FIGURE 198.

Basionym: *Melastoma angustifolia* Sw., Prodr. 71. 1788; Fl. Ind. Occid. **2:** 796. 1800.
Lectotype: Jamaica, *Swartz s.n.* (s!); designated by Howard & Kellogg, J. Arnold Arbor. **67:** 236. 1986.

Shrub or small tree < 6 m tall, branches terete. Leaves with petioles 5-10 mm long; blades linear-lanceolate, 4-8 × 0.4-1.2 cm, base obtuse or cuneate, apex long-acuminate, margin entire, recurved, veins a single basal pair, membranaceous to subcoriaceous, glabrous above, densely pubescent below with minute stellate-peltate hair clusters. Panicles 2-6 cm long with appressed stellate hairs. Flowers short-pedicellate; hypanthium 1.5 mm long, flaring above, sepals 0.8-1 mm long, apex rounded or acute; petals obovate, 2 mm long, yellowish or pink; anthers 1.5 mm long; style 4 mm long. Berries globose, 3-4 mm in diameter, bluish black.

GENERAL DISTRIBUTION: Jamaica, Puerto Rico, Virgin Islands.



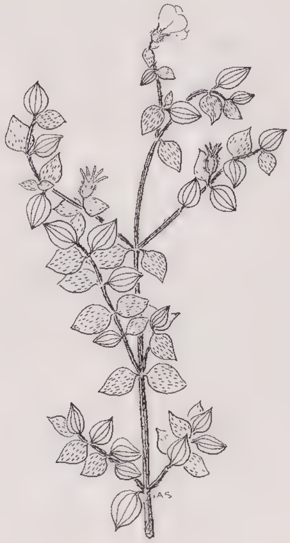


Figure 198 (left). *Tetrazygia angustifolia*, × 0.4. Figure 199 (right). *Tibouchina ornata*, × 0.4.

Distribution in Lesser Antilles: Antigua!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

Common names: Broom wood, ti-côtelette.

Tetrazygia discolor (L.) DC., Prodr. **3:** 172. 1828.

Basionym: *Melastoma discolor* L., Syst. Nat. ed. 10, **2:** 1022. 1759.

Lectotype: Sloane, Voy. Jamaica *t. 198, fig. 1.* 1725; designated by Howard & Kellogg, J. Arnold Arbor. **67:** 240. 1986.

Syn.: *Melastoma acuminata* M. Vahl, Eclog. Amer. **1:** 47, *t. 7.* March 1797, non Desr. (Feb., 1797). (Type: Montserrat, *Ryan s.n.* (holotype, c!; IDC 2201. 46: I. 5, photo!).)

Melastoma christophoriana Ham., Prodr. Pl. Ind. Occid. 37. 1825. (Type: St. Kitts, no specimen extant.)

Miconia christophoriana (Ham.) DC., Prodr. **3:** 200. 1828 (as 'christophorianum').
Tetrazygia discolor (L.) DC. var. *villosa* Griseb., Fl. Brit. W. Indian Is. 255. 1860. (Type: Dominica, *Imray s.n.* (K!).)
Tetrazygia villosa (Griseb.) Cogn. *in* A. DC., Monogr. Phan. **7:** 721. 1891.

Shrub or tree to 10 m tall, branches densely scurfy with stellate hairs, becoming glabrate. Leaves with petioles 1.5-6 cm long, those of a pair noticeably unequal; blades ovate or ovate-lanceolate, 7-20 × 2-8 cm, base rounded, apex acuminate, margin wavy or obscurely toothed, 2 pairs of veins, the inner suprabasal, glabrous above, often white below with short, dense, stellate pubescence, especially on veins and veinlets. Panicles corymbiform, to 12 cm long, whitish with short tomentum. Flowers with hypanthium 2.5-3 mm long; calyx flaring with 4 rounded or acute teeth, scurfy pubescent; petals obovate, 2-3 mm long, white; stamens 8, anthers 2 mm long; style 4-7 mm long. Berries globose, 3-5 mm in diameter, scurfy and white becoming glabrate and black.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Ashes wood, bois cendre, hogwood, crécré blanc.

NOTES: Several distinctive collections have been seen from the Lesser Antilles. Grisebach described var. *villosa* from Dominica as having "Branches, panicle and petioles villose, with hairs forked at the top; leaves serrulate (or sometimes entire)." Specimens from Dominica, Montserrat and Nevis match this material, which Cogniaux recognized at the specific level. Both sessile and stalked stellate hairs occur on these specimens. One collection from Montserrat (*R. A. & E. S. Howard 15084*, GH) has petals to 7 × 5 mm, conspicuously larger than any other collection. A collection from St. Vincent (*Morton 4935*) of two sheets has one with scattered strigose pubescence on the leaves with hairs to 4 mm long, whereas the other sheet is glabrous or glabrate. In general, density of pubescence and the presence of a white-colored lower epidermis of the leaves are regarded as variable.

TIBOUCHINA Aublet

Tibouchina Aublet, Hist. Pl. Guiane **1:** 445. 1775.

Herbs or shrubs, simple or much branched, stems quadrangular, all parts pubescent, commonly strigose, with hairs adnate to surface, or if free, often swollen at base, frequently gland-tipped. Leaves of a pair subequal, petiolate; blades basal acrodromous with 1 or 2 pairs of veins, or these absent or not evident, membranaceous to subcoriaceous or rigid. Inflorescences terminal or axillary, cymose or of solitary flowers. Flowers 4- to 8-merous, usually pedicellate; hypanthium mostly campanulate or cylindrical, not constricted at neck, ribbed, pubescent; calyx lobes well-developed, persistent; petals brightly colored pink, rose or purple, or white, commonly ciliate on margin; stamens isomorphic, filaments terete, anthers subulate with one apical pore, connective slightly expanded at base forming tubercles or short spurs; ovary free, 4- or 5-locular, globose, with a ring of bristles at base of filiform styles, stigma punctiform. Fruit a globose capsule, thin-walled, rupturing irregularly and shedding seeds through network created when hypanthium loses tissue between the ribs; seeds numerous, minute, cochleate, minutely foveolate.

TYPE: *Tibouchina aspera* Aublet.

A genus of 350 species of tropical America occurring abundantly in Brazil. The species of the Lesser Antilles are found at higher elevations and often as compact shrubs on volcanic soils and cinders. The genus *Tibouchina* was not recognized by Naudin or Grisebach, each of whom placed the Lesser Antillean species in several genera. It is quite possible they were correct. For commentary on the bibliographic citations used, see R. Howard, J. Arnold Arbor. **53:** 399-402. 1972.

CULTIVATED TAXA

Tibouchina urvilleana (DC.) Cogn. (in horticulture as *T. semidecandra*) and *T. granulosa* (Desr.) Cogn. are found in a few gardens in the Lesser Antilles.

KEY TO THE SPECIES

1. Herbs; flowers white, rarely pink; leaves lanceolate, 3-10 × 1-3.5 cm, with soft hispid pubescence . . . . *T. longifolia*
1. Small shrubs usually compactly branched, or stout woody herbs of low stature; flowers pink or pink-purple; leaves usually < 2 cm long, pubescence strigose.
    2. Leaves clearly acrodromous with 1 or 2 pairs of basal veins.
        3. Leaves ovate or elliptic-ovate, 6-15 mm wide, copiously pubescent with hairs oriented toward recurved margin, lateral veins impressed above . . . . *T. cistoides*
        3. Leaves narrowly ovate to ovate-lanceolate, 2-5 mm wide, sparsely strigose with hairs oriented parallel to midrib, margin flat, veins not impressed . . . . *T. ornata*
    2. Leaves lacking evident secondary veins.
        4. Leaves lanceolate, acuminate, hairs on upper surface 6 to 9, usually in pairs and oriented parallel to midrib, adnate for half their length; flowers usually few; calyx lobes equaling the hypanthium . . . . *T. chironioides*
        4. Leaves ovate, acute, hairs on upper surface appearing as closely packed ridges and oriented at an angle, free only at tips and near margin; flowers usually solitary; calyx lobes shorter than the hypanthium . . . . . *T. chamaecistus*

Tibouchina chamaecistus (Naudin) Cogn. *in* A. DC., Monogr. Phan. **7:** 267. 1891.

Basionym: *Hephestonia chamaecistus* Naudin, Ann. Sci. Nat. Bot. sér. 3, **13:** 37. 1850.
Type: Martinique, slopes of Mt. Pelée, *Mme. Rivoire s.n.* (probably at P).
Syn.: *Chaetogastra chamaecistus* (Naudin) Griseb., Fl. Brit. W. Indian Is. 267. 1860.
Pleroma chamaecistus (Naudin) Triana, Trans. Linn. Soc. London **28:** 47, *t. 3, fig. 31q.* 1871.

Low alpine shrubs, densely branched, stems tetragonal, densely strigose with hairs tightly appressed, ascending. Leaves with petioles 1 mm long; blades oblong or elliptic, 8-10 × 3-5 mm, base round, apex acute, ending in a bristle, margin recurved, ciliate, lateral veins not evident, rigid, bristles on upper surface wholly adnate, forming 12 to 14 parallel ridges projected to free point at margin, bristles on lower surface less adherent. Flowers terminal, solitary or rarely in 3's, pedicellate; hypanthium to 7 mm long, strigose with bristlelike hairs ending in a gland; calyx lobes oblong, 4 mm long, apex acute, erect, with surface and marginal hairs; petals obovoid-spathulate, 14 × 12 mm, apex rounded, purple, strongly glandular ciliate; anthers 3 mm long; style 8 mm long. Capsules 7 mm in diameter.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Lucia!.

COMMON NAMES: Ti-thym, thym montagne.

NOTES: This species is known only from Mt. Pelée on Martinique and Morne Gimie on St. Lucia. The collection *Duss 2251* (GH) with a label of "Guadeloupe" is a mixed collection, and apparently Stehlé & Quentin saw another, for they report (Fl. Guadeloupe **2**(3): 99. 1949) that it was in part *T. ornata* from Guadeloupe and in part *T. chamaecistus* from Martinique.

Tibouchina chironioides (Griseb.) Cogn. *in* A. DC., Monogr. Phan. **7:** 267. 1891.

Basionym: *Chaetogastra chironioides* Griseb., Fl. Brit. W. Indian Is. 267. 1860.
Type: Dominica, *Imray s.n.* (K!).
Syn.: *Pleroma chironioides* (Griseb.) Triana, Trans. Linn. Soc. London **28:** 47. 1891.

Slender shrub < 80 cm tall, branches tetragonal, strigose with ascending and spreading hairs. Leaves with petioles < 1 mm long; blades lanceolate, 6 × 1-1.5 mm, base acute, apex long-acuminate, terminating in a bristle, margin revolute, lateral veins inconspicuous, rigid, bristles on upper surface 6 to 9, usually in pairs and parallel to midrib, each adnate for half their length, yellowish, abaxial surface paler with few bristles on midrib. Flowers usually in 3's at ends of branches, subsessile; hypanthium cylindric, 4 mm long, strigose; calyx lobes linear-lanceolate, ≤ 4 mm long, tapering to a bristle at tip; petals obovate, 15 × 10 mm, pink-purple, margin ciliate; anthers 2 mm long. Capsules 5-6 mm in diameter.

GENERAL DISTRIBUTION: Restricted to Dominica at an elevation of 1900-2100 ft.

NOTE: A collection by the late W. T. Gillis (*#8242*, GH) is this species but according to the label was collected on ''Antigua, north end of the island'' on June 2, 1969. A personal letter from this period reported Gillis had spent one half a day on Antigua and three days on Dominica. There is no appropriate elevation or vegetation type on Antigua for this plant and the label is in error as the collection had to be from Dominica.

Tibouchina cistoides (Griseb.) Cogn. *in* A. DC., Monogr. Phan. **7:** 266. 1891.

Basionym: *Chaetogastra cistoides* Griseb., Fl. Brit. W. Indian Is. 267. 1860.
Type: St. Vincent, *Guilding s.n.* (holotype, GOET!; isotype, K!).
Syn.: *Pleroma cistoides* (Griseb.) Triana, Trans. Linn. Soc. London **28:** 47. 1891.

Diffuse shrub from 4 to 60 cm tall, branches subcylindrical, densely strigose with long hairs. Leaves with petioles 2-6 mm long; blades ovate, 12-35 × 6-15 mm, base rounded, apex acute, margin revolute, basal veins 1 or 2 pairs, impressed above, slightly rigid, adaxial surface densely covered with strigose hairs oriented toward margin, often gland-tipped, these adnate for various distances at base, abaxial surface strigose on veins, hair base slightly swollen. Flowers cymose at ends of branches, peduncles to 1 cm long; hypanthium 4 mm long, cylindric, strongly ribbed, densely strigose; calyx lobes subulate-linear, to 4 mm long; petals obovate, 9-12 × 9 mm, apex rounded, margin ciliate with glandular hairs, reddish purple. Capsules 6 mm in diameter, calyx lobes persisting.

GENERAL DISTRIBUTION: Endemic to St. Vincent at high elevations.

Tibouchina longifolia (M. Vahl) Baillon ex Cogn. *in* C. Martius, Fl. Bras. **14**(3): 402. 1885.

Basionym: *Rhexia longifolia* M. Vahl, Eclog. Amer. **1:** 39. 1797.
Type: ''America meridionali,'' *von Rohr 15* (holotype, C; IDC 2201. 59: II. 2, photo!).
Syn.: *Chaetogastra lanceolata* DC., Prodr. **3:** 131. 1828, nom. illegit. citing *Rhexia flexuosa* Ruíz & Pavón, which specific epithet should have been adopted.
Arthrostemma lanceolatum Griseb., Fl. Brit. W. Indian Is. 267. 1860.
Pleroma longifolium (M. Vahl) Triana, Trans. Linn. Soc. London **28:** 45, *t. 3, fig. 31n.* 1871.

Woody herb, to 1 m tall, much branched, stems with soft hispid pubescence, hairs long-ascending with bulbous bases. Leaves with petioles 0.5-2 cm long; blades narrowly elliptic to lanceolate, 3-10 × 1-3.5 cm, base acute, apex acute to short-acuminate, margin entire, basal veins 2 or 3 pairs, adaxial surface hispid with long adnate hairs, abaxial surface strigose, hair bases swollen and not adnate. Inflorescence of stalked cymes, few- to many-flowered, lax, pubescent; peduncles 1.5 cm long. Flowers on pedicels 1-4 mm long; hypanthium 3-4 mm long, setose; calyx lobes linear to subulate, 3-4.5 mm long, with terminal bristle and ciliate margin; petals oblong-spathulate, 5-7 × 3-4 mm, base narrowed, apex acute, with terminal seta and ciliate margin, white; stamens dimorphic, anthers 2.5-4 mm long, connective with inconspicuous ventral lobes; style 5-10 mm long. Capsules 4 mm in diameter, enclosed in strongly ribbed hypanthium.

GENERAL DISTRIBUTION: Cuba, Hispaniola, Trinidad, Central America, South America to Bolivia.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, St. Vincent!.

NOTE: The occurrence of this plant only on St. Kitts and St. Vincent in the Lesser Antilles reflects the weedy nature of the species.

Tibouchina ornata (Sw.) Baillon, Adansonia **12:** 74. 1876. FIGURE 199.

Basionym: *Melastoma ornata* Sw., Prodr. 69. 1788.

Lectotype: Guadeloupe, *de Ponthieu* (BM!, labeled #1); designated by Howard, J. Arnold Arbor. **53:** 399. 1972.

Syn.: *Rhexia strigosa* Rich., Actes Soc. Hist. Nat. Paris **1:** 108. 792. (Type: *Leblond s.n.*, n.v.)
Melastoma ciliata Desr. *in* Lam., Encycl. **4:** 49. 1797, non Rich. (1792).
Rhexia inconstans M. Vahl, Eclog. Amer. **1:** 37. 1797, nom. illegit. for *Melastoma ornata* Sw.
Osbeckia ornata (Sw.) Sw., Fl. Ind. Occid. **2:** 647. 1798.
Rhexia ornata (Sw.) Rich. *in* Humb. & Bonpl., Monogr. Melast. **2:** 69, *t. 26.* 1813.
Chaetogastra strigosa (Rich.) DC., Prodr. **3:** 134. 1828.
Tibouchina strigosa (Rich.) Cogn. *in* A. DC., Monogr. Phan. **7:** 266. 1891.

Low woody herb to 30 cm tall, branches quadrangular, strigose with ascending, appressed or spreading hairs. Leaves with petioles 1-3 mm long; blades narrowly ovate to ovate-lanceolate, 4-10 × 2-5 mm, base rounded, apex acute, margin entire, flat, basal veins 1 pair, not impressed, sparsely strigose with 16 to 20 bristles on adaxial surface and margin, parallel to midrib, adnate 1/2 their length, hairs on abaxial surface thinner. Flowers solitary or 3 to 5 at ends of branches, on pedicels 4 mm long; hypanthium campanulate, < 3 mm long; calyx lobes ovate-oblong, 4 × 1-2 mm, with stout gland-tipped hairs and apical setae; petals obovate-spathulate, 10 × 8 mm, margin ciliate, pink-purple; anthers 2 mm long. Capsules 3 mm in diameter.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Kitts!, Montserrat!, Guadeloupe!.

NOTE: Howard & Kellogg (J. Arnold Arbor. **67:** 247. 1986) incorrectly attribute the type collection of *Melastoma ornata* to a Swartz collection from Jamaica. As noted by Howard (J. Arnold Arbor. **53:** 399. 1972), Swartz originally described this species citing Jamaica as the type locality. However, in his subsequent treatment in the Florae Indiae Occidentalis (under *Osbeckia ornata*), Swartz cited the original description from the Prodromus, but mentioned only collections from St. Kitts and Guadeloupe in the Banks Herbarium. As such, and given that this species does not occur in Jamaica, Howard appropriately originally designated the de Ponthieu collection at BM as the lectotype.

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